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Expenditures and Revenues of the Federal Government

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Introduction

CRITICISM of the Federal Government is the vogue nowadays. With taxes and surtaxes that are direct and heavy enough to be seriously felt, the industries slowed up and wages and prices in readjustment, nearly everyone finds some reason for criticism. The executive departments are charged with being inefficient, extravagant and overdeveloped, and are popularly supposed to be wasting large sums of the people's money. It has even been suggested that the high cost of living is due to the high cost of government, and that if reasonable economies were introduced in the executive departments the cost of living would be appreciably reduced. If it were stated that high prices and the high cost of living were due to the direct and indirect consequences of the war, the truth of the statement would not be questioned. But when it is asserted that they are caused by the high cost of government, it appears desirable to inquire:—What is the cost of government? What are the functions of government? And what becomes of the four or five or six billions of dollars annually collected in taxation?

Since the war the expenses of the government have increased enormously, and it seems to have been assumed by some that the civil bureaus and departments have increased their activities and expenses in the same proportion as the total has increased. Much has been said and written about the great expansion of the bureaus, and the need for curbing their growth and cutting their estimates is often em-

phasized. Some writers, while saying little of their usefulness or the increased need of their services, say much of their inefficiency, extravagance and overdevelopment, and of the duplication of work by different bureaus or departments. These statements are usually made in general terms and without proof or particulars, but they appear to be made in good faith and apparently with the belief that bureau officers are more anxious to expand their functions and spend money than to increase the efficiency and usefulness of their respective bureaus. This opinion is so seriously at variance with what one should expect that it appears worth while to examine the facts in the case.

A prominent western paper recently said:

The people are willing to pay the cost of the war. They are willing to pay adequate salaries and wages for all the public officials and employes actually needed for government work. But everyone knows that government expenditures in the nation, the state and the municipality are enormously swollen by unnecessary departments, commissions, bureaus, boards, officials and employes, to swell the list of soft places for party workers. The biggest issue today in this country is the tax issue. The government may take warning now; the people will not stand for increasing burdens of taxation for party loot and public waste.

Such ideas have been expressed over and over again, in editorials, on the platform and in resolutions of public bodies. But some writers go further and assert that not only is there a large surplus of federal employes in the de-

partments, but that taken as a class they are inefficient and unprofitable. Such a serious indictment of the government deserves to be examined, and if found to be true the responsibility should be placed and the remedy applied.

Congress has already acted in the matter of appropriations and has made radical reductions in many directions. It has also under consideration an executive budget, a rearrangement of some of the bureaus, a classification and standardization of the personnel of the government, and other constructive measures looking to increased efficiency in the public service. Nobody will welcome efforts to increase the efficiency of the government service more cordially than the permanent civil service staff of the government,—or what should be the permanent staff, but in these later days is anything but permanent. Such efforts are timely and will perhaps be facilitated by further discussion of the functions and cost of government; for there is a good deal of misunderstanding and misconception in the public mind regarding the work of the Federal Government, its scope and value and cost.

The Functions of Government

Henry C. Adams, in his treatise on the *Science of Finance*, classifies governmental functions into three groups: (a) The protective functions of government, (b) the commercial functions of government, and (c) the developmental functions of government.

(a) The protective functions of government are divided into three principal classes: (1) Protection against invasion or encroachment from without is provided by the Army and Navy, and this has always been an important and relatively expensive department of a national government. (2) Protection of life, property and reputation,

which is accomplished through police, fire departments, and the courts. (3) Protection against the spread of disease, either physical or social. As crime is looked upon as a phase of social disease, this will include prisons, asylums, sanitary provision, public charities, etc.

(b) The commercial functions of government include those which render a service for which payment is made by the individuals served, and are in general self-supporting. They address themselves primarily to the personal needs of the citizen rather than to the social needs of the state, and are performed by the state because it can render the service better or cheaper than private agencies. These services are generally such as can be rendered better by a single agency having a monopoly, rather than by many competing agencies. Hence it is usually a choice between the government performing the service or supervising the private agency which does so. Examples are the post office, railways, canals, telegraphs and other public utilities, patents and insurance.

(c) The developmental functions of government “are such as spring from a desire on the part of society to attain higher forms of social life.” Society is not merely a collection of individuals, but is a conscious organism, and the interests of society require collective action in its development. This includes: (1) Public education, (2) public recreation, (3) providing those legal and administrative conditions in which private business will be conducted in a just and equitable manner, (4) investigation and control of public utilities, (5) developing the resources and wealth of the state, which includes scientific and industrial research and the coöperation of the government with scientific and engineering societies and the

industries in engineering and industrial standardization.

DEVELOPMENTAL FUNCTIONS OF THE FEDERAL GOVERNMENT

These three classes of functions are exercised to some extent by municipal and state governments as well as the Federal Government. The powers of the Federal Government were delegated to it by the states, and were intended to be those required for the exercise of sovereignty by the nation in its relation with other nations, the maintenance of a national army and navy, the provision of a national currency, a common postal system, a uniform system of weights and measures (although this was not carried out as intended), the regulation of interstate commerce, etc.

In the early years of our history, society was relatively simple, communication and travel were infrequent, and each community was comparatively independent. Hence local governments were, in many respects, more important than national. With the developments in transportation and communication which have resulted from steam and electricity, the forty-eight states have come very close together, commerce and industry have much in common everywhere, uniformity of practice and uniformly good practice are generally desired, and it has been a problem how to avoid confusion of administration and industrial practice when there were so many legislative and administrative bodies in the various states acting independently of each other. This has been partly accomplished by the coöperation of federal agencies with state bodies, leaving the legal authority with the states. But very much remains to be accomplished in this regard, and in many cases where coöperation is greatly needed, the Federal Government is doing little or nothing.

Many protective and developmental functions have long been exercised by the Federal Government because they were of common interest to all the people, they could be performed more effectively and more economically by the Federal Government than by the several states, and there was difficulty in getting all the states to work in harmony on a common program. The people who support the Federal Government are the same people who support the forty-eight state governments, and hence the plan of acting together through the Federal Government in performing functions of interest to all is not only economical and efficient but logical and just. In practice it has worked out exceedingly well in many cases where a single agent can perform the service more efficiently than many agencies. On the other hand there are some cases, such as vocational and agricultural education and the construction of improved highways, where the Federal Government is promoting activity and coöperation among the states by aiding in the financial support of work carried on by the states.

SCIENTIFIC RESEARCH A LUXURY OR A NECESSITY?

For many years the revenues of the Federal Government were ample and easily obtained. Taxation was indirect and not felt and many of the developmental functions of the government were exercised with little question or objection. The Great War involved enormous expenditures and increased the fixed charges due to the public debt and other war obligations to several times the former budget. The result is that expenditures for education, scientific research and development work are severely scrutinized, and the question is raised as to whether we can afford to carry on such work on a generous scale. It is, of course, proper

that every item in the national budget be closely scrutinized, and that nothing be passed which can not justify itself. It is desirable, therefore, to inquire whether scientific and industrial research as carried on by the Federal Government is a luxury or a necessity; whether it is something to be enjoyed when taxes are light and curtailed when taxes are heavy; or whether it is creative and wealth-producing, and therefore to be increased and developed when expenses are abnormally large and a heavy debt must be liquidated. The question is, in short, whether scientific and industrial research and education and other developmental work of the government are like good seed and fertilizer to a farmer, which are essential to the best success; or whether they are as luxuries to the rich which should be curtailed when necessary expenses increase. Before discussing this question further, however, we may consider the organization of the Federal Government and the classification of its activities. As a basis of such classification, we may take the government's budget of expenditures and revenues, analyzing and classifying them according to the functions of the various branches of the service.

Distinction Between Gross Expenditures and Net Expenses of Government Departments

Some months ago the writer made a study of the appropriations for all branches of the government service for the fiscal year 1920. These appropriations were analyzed and classified into six groups.¹ The result showed that for the fiscal year 1920, three per cent of the total budget was appropriated for general governmental purposes

(legislative, executive, and judicial), three per cent for public works, one per cent for research, education, and development, and 93 per cent for the army and navy, railroad deficit, shipping board, pensions, war-risk insurance and interest on the public debt, all of which are either obligations arising from the war or preparation for possible future wars.

In order to get a more accurate knowledge of government expenditures, and to ascertain how they have increased in recent years, the receipts and expenditures of all departments for the past ten years have since been analyzed, using the official published records of the Treasury Department for the purpose, but following a somewhat different and more detailed classification. Appropriation bills do not show the earnings or credits to bureaus and departments and hence in many cases are misleading as to the real cost of a given branch of the service. In some cases the whole cost, and in other cases a large part of the cost, is covered by fees or earnings. Examples of such cases are the Consular Service, the Patent Office, the Land Office, the Reclamation Service, the Bureau of Navigation, the Forest Service, National Bank examinations, the Federal Reserve Board and notably the Post Office. A "billion dollar Congress" was a familiar phrase in prewar days, and this was generally supposed to mean that the National Government cost the taxpayers a billion dollars a year. This, however, was not the case. It meant merely that the total appropriations by Congress, that is, the authorized gross annual disbursements of the government, including the entire business of the Post Office Department, amounted to a billion dollars per annum. In no single year prior to our entry into the Great War were the net expenses of the government payable

¹ The Economic Importance of the Scientific Work of the Government, *Journal of the Washington Academy of Sciences*, vol. 10, pp. 341-382. 1920.

from taxation as much as seven hundred millions of dollars. The important distinction between gross disbursements and net expenses should be emphasized, for it is often overlooked. This study has yielded results of very great interest and value, and throws much light on the question of the cost of government, and whether the civil activities of the Federal Government are overdeveloped, and to what extent they are a burden upon the taxpayer.

In what follows, comparatively little will be said of the military side of the government, except to give its expenditures. Its importance and necessity are taken for granted, and no criticism is intended in pointing out the large amount required for such purposes. The writer is strongly in favor of an adequate and efficient army and navy, but he expresses no opinion as to what is adequate or how much should be spent for the purpose.²

DISBURSEMENTS, RECEIPTS AND NET EXPENSES FOR TEN YEARS

In order to obtain a correct idea of the actual expenses of the various departments and bureaus of the government, it is necessary to take account of their earnings and of credits for the sale

² The Bureau of Standards during the war did a large amount of research and testing for the army and navy, using for the purpose its own funds so far as they were available, and a great deal more transferred by the military departments. Since the war some of these military researches have been continued and others undertaken with funds provided by the army and navy. It is a pleasure to testify to the cordial relations that have existed between this bureau and these departments, and the generous appreciation by the latter of the work done for them by the Bureau of Standards. Nothing in this article should be understood as a criticism of either department or as depreciating the importance of military preparedness. The aim is to set forth the facts as to expenditures and to emphasize and urge the importance of research and education in the interest of civil and military efficiency.

of government property, of trust funds received and disbursed, and of unexpended appropriations turned back into the Treasury. The Treasury Department publishes each year a *Combined Statement of Receipts, Disbursements, Balances, etc.*, of all departments for which appropriations are made, as well as of revenues collected, and these official publications have been used in this study. The ten fiscal years, 1910-1919, inclusive, were first taken before the report for 1920 was available. A study of 1920 has since been added.

In some cases appropriations greatly exceed actual net expenses, and, on the other hand, certain continuing and indefinite appropriations do not appear explicitly in current appropriations. Fees and fines, proceeds from the sale of government property and other collections are turned into the Treasury and recorded under miscellaneous receipts, and can not be expended by the department or bureau collecting them. During the fiscal years 1910 to 1917, inclusive, the amounts of these miscellaneous receipts ranged from forty-five to eighty million dollars each year. In the two war years, 1918 and 1919 taken together, they amounted to over nine hundred million dollars, including several hundred millions for interest on loans to European governments.

Expenditures and receipts are distributed among the 106 items of the eight groups of government agencies,³ and net revenues and net expenses determined for each item and each group, and the whole added and balanced and checked against the figures given in the summaries published by the Treasury Department. For each year a summary statement was also made for group IX, showing the revenues collected through the customs, internal-revenue taxes, and taxation

³ See page 10-11.

of national-bank circulation. These are the only revenues resulting from taxation; fees and fines and the proceeds of sales of government property being credited to departments, as stated above, as an offset to expenses. For example, the fees collected by the State Department or the Patent Office or the Land Office, or the Bureau of Navigation, or a federal court are not intended as taxes for governmental revenue, but rather as fees to cover in part or in whole the expense incurred in rendering a special service or adjudicating a specific case, or as an administrative measure, and are properly credited against the expenses of the given agency.

Most, if not all, of these agencies perform public functions and thus render a service to the public as a whole apart from the service to individuals for which a fee is collected. It is thus proper that the public as a whole should pay for the general service to the public, if the individuals served pay for the individual service which they receive. But it is obviously unfair and misleading to charge against a department or bureau the entire expense, and not credit to that department or bureau fees and other earnings or receipts from government property sold, all of which have caused the expenses of the given department to be greater than otherwise.

An extreme case of the kind is the Post Office. The Postal Service account is kept separate from the General Fund of the Treasury, and includes all the receipts of post-office business and all expenses other than salaries for the central administration of the Post Office Department, and certain items of a general character. In addition to these overhead items paid from the Treasury, which amount on the average to less than one per cent of the postal revenues, the net deficiency or net sur-

plus is transferred over to the General Fund of the Treasury in a single item each year. During the ten fiscal years 1910-1919 the total of the surplus amounted to \$26,033,448, and the total of deficiencies amounted to \$30,890,619, leaving a net deficit of only \$4,857,171 for the entire ten-year period, with a total business of nearly three billions of dollars. The deficit was thus less than two-tenths of one per cent of the total business. The total of the surpluses transferred to the general fund of the Treasury from the postal service account exceeded the deficits by \$14,399,161, whereas the overhead and miscellaneous expenses of the Post Office Department paid directly from the Treasury amounted to \$19,256,332. The difference between these sums is the net deficit given above, which is an average of less than half a million dollars per year. This is in addition to \$110,000,000 special war revenue collected while three-cent letter postage was in effect. The excess revenue resulting from the extra cent charged, which was regarded as a war tax, was all transferred to the General Fund.

The expenditures on the Panama Canal while under construction were included in the Public Works group, but after its opening the cost of routine operation and maintenance together with tolls collected were placed in group I, while the cost of additions and betterments was included in group III. The cost of the fortifications of the Panama Canal, however, has been charged in this study to the War Department as a military expenditure. On the other hand, the large sums spent for river and harbor improvements, which are expended by the army and charged to the War Department in the Treasury account, have been charged in this study to Public Works, on the ground that these im-

provements are for civil rather than military purposes.

The Reclamation Service has annual appropriations of about nine million dollars, but it is provided that it can not expend any more money than is received annually through the sale of public lands and by collections from settlers for lands they occupy or for water received by them for irrigation purposes. Thus the nine-million-dollar appropriation to the Reclamation Service is only an authorization to use the money which they annually collect, or which has been turned into the Treasury by the Land Office, and hence the Reclamation Service costs the taxpayers very little. Some years ago \$20,000,000 was, indeed, advanced to the Reclamation Service as a loan, in addition to the receipts from land sales and collections from irrigation projects. This has all been expended and this year a first installment of one million dollars will be paid into the Treasury toward the liquidation of the loan.

The appropriations for the District of Columbia for the current fiscal year amount to over sixteen millions of dollars, but some parts of this sum are borne entirely from the revenues of the District, and 60 per cent of the remainder is also paid by the District. Not much over one-third of the total is borne by the federal treasury.

The Treasury Department maintains a large force of national-bank examiners, and expended in 1919 more than a million dollars for their salaries and expenses, but it collects and reimburses the Treasury for every dollar of it through assessments upon the banks.

It also collects nearly a half a million dollars a year from national banking associations on account of salaries and contingent expenses of the Treasurer of the United States and the Comptroller of the Currency. The expenditures in 1919 for Indian affairs amounted to \$33,320,447, but more than two-thirds of this sum was the Indians' own money, which the government handled as trustee for the Indians. Only \$10,218,327 was borne out of taxation as an actual expense to the government.

These examples are given to illustrate the important distinction between gross disbursements and net expenses of the various departments of the government, and to show how misleading it is to look at only one side of the account as one does in looking only at the appropriations.

A Functional Classification of the Activities of the Federal Government

In order to get a proper perspective of the various activities of the Federal Government, protective, commercial and developmental, the departments, bureaus, commissions and other governmental agencies have been classified, according to their functions, into eight groups. A ninth group includes the sources of revenue from direct or indirect taxation. In the following brief description of these eight groups the total net expenses of each group for the fiscal year 1920 is given. A detailed list of the constituents of each group is given on *pp.* 10-11, and the expenditures are discussed below:

GROUP I—*Primary governmental functions, legislative, executive and judicial*, including Congress, the President and White House staff, departments of State, Justice, Post Office, and most of the Treasury, a part of Interior, Agriculture, Commerce, and Labor, the Interstate Commerce, Federal Trade, Civil Service and other Commissions, the Federal Courts and penal establishments, and the District of Colum-

bia; covering all the necessary functions of government other than defense, except the research, education and development work of group II, and the construction of public works of group III.	\$224,110,594
GROUP II— <i>Research, education, and developmental work</i> , including the wide range of research work of the sixteen bureaus of the Agricultural Department; the Geological Survey, Bureau of Mines and Bureau of Education; Coast and Geodetic Survey, Bureaus of Standards, Census and Fisheries; Women's and Children's Bureaus and Labor Statistics; Vocational Education, Colleges of Agriculture and Mechanic Arts; Library of Congress, Smithsonian Institution, Public Health Service and National Parks; covering most of the scientific, educational, cultural and wealth producing activities of the government.	57,368,774
GROUP III— <i>Public Works</i> , including river and harbor improvements, the construction of new public buildings, the Reclamation Service, construction of a railroad in Alaska, Rural Post Roads, and before the war the Panama Canal; covering projects of construction as distinguished from operation.	85,071,042
GROUP IV— <i>Army and Navy</i> , maintenance and development, including armament and fortifications and new construction for the Navy.	1,348,892,747
GROUP V— <i>Pensions and Care of Soldiers</i> , including pensions, the net expenses of the war risk insurance, rehabilitation of soldiers and care of soldiers by the Public Health Service.	329,261,746
GROUP VI— <i>Obligations Arising from the war</i> , including the deficit of the Railroad Administration, the Shipping Board, European food relief, special expenses of war loans, federal control of telegraph and telephone service, National Security and Defense, Food and Fuel Administrations, War Labor Administration, and other war boards and commissions.	1,634,695,095
GROUP VII— <i>Interest</i> , including interest paid on the funded and floating debt and interest bearing trust funds, less interest received and discount on bonds repurchased.	929,131,128
GROUP VIII— <i>Public Debt, Loans and Trust Funds</i> , including public debt transactions, loans to European governments, loans to farmers, banks and purchase of stock, seigniorage and trust funds, total for 1920 = \$1,697,983,576 Less amount paid from general fund = 681,801,853 Balance = Surplus of revenue over current expenses.	1,079,181,723
	<hr/> \$5,687,712,848
GROUP IX— <i>Revenues</i>	
Customs, less refunds.	\$296,274,230
Internal revenue, less refunds.	5,379,353,020
Tax on National Bank Circulation.	7,172,598
Postal War Revenue.	4,913,000
	<hr/>
Total net revenue from taxation in 1920.	\$5,687,712,848

The first three groups include all the normal civil activities of the government; the next three, the current costs of the Army and Navy, the care of soldiers and the obligations arising from the war, are military; the last two may also be classed with the military as they represent the expenses arising from that part of the cost of

search, education and development; and 80 cents was spent for public works, a total of \$3.45. The remainder, \$50.01 went for military expenditures and paying for past wars. These civil expenses certainly do not seem unreasonable. Indeed, they are surprisingly small when we consider the wide range of Federal Governmental activities and

Group		Per Cent	Per Capita
I—Primary Governmental Functions		3.9	\$2.11
“ II—Research, Education and Development		1.0	0.54
“ III—Public Works		1.5	0.80
“ IV—Army and Navy		23.8	12.68
“ V—Pensions and Care of Soldiers		5.8	3.09
“ VI—Obligations arising from the War		28.7	15.36
“ VII—Interest		16.3	8.73
“ VIII—Surplus for Reduction of Public Debt		19.0	10.15
Total		100.0%	\$53.46

past wars which is not yet liquidated. Dividing the amount expended for each group by the total for the year, we have the percentages given in the above table. Dividing the totals by the population of the country on June 30, 1920, 106,380,000, we have the per capita costs of each group.

Thus the expenses of three civil groups together amount to 6.4 per cent of the total, and the military groups, including interest and reduction of the public debt (paying for the war) amount to 93.6 per cent of the total. Before the war, as we shall see later when we come to examine the prewar expenditures of the government, the civil expenses constituted a much larger part of the total, while of course during the war they were much less.

The second column in the above table gives the per capita costs of government in 1920. Of the total of \$53.46 per capita revenue collected through taxation in 1920, \$2.11 was spent for the primary functions of government, legislative, executive, and judicial; 54 cents was spent for re-

search, education and development; and 80 cents was spent for public works, a total of \$3.45. The remainder, \$50.01 went for military expenditures and paying for past wars. These civil expenses certainly do not seem unreasonable. Indeed, they are surprisingly small when we consider the wide range of Federal Governmental activities and

the high costs of conducting business of all kinds in 1920. The net cost payable from taxation of municipal government in New York, Chicago and Philadelphia in 1918 was \$30.22 per capita. In 1920 it was considerably more, probably *not less than 10 times the per capita cost of the civil side of the Federal Government, as defined above.*

One is led to wonder how it is possible to operate a great national government adequately on a per capita cost of \$2.11 for the primary governmental functions; and whether if instead of 54 cents per capita for research, education and development, twice as much had been spent, it would not have made the burden of taxation lighter instead of heavier, by rendering a greater service to the people and creating wealth and aiding industry in larger measure.

Before attempting to answer these questions or going further with the study of the costs of government, we must make a more detailed classification of the government's activities and

may then take a rapid but somewhat more detailed survey of the activities of the government in the various groups in order to better appreciate what was accomplished in 1920 by \$3.45 per capita in the three civil groups, and by \$50.01 in the remaining groups of the government.

In the following classification the grouping is by functions, but the order in the groups is largely determined by the order in appropriation bills and the Treasury publications.

Group I Primary Governmental Functions, Legislative, Executive and Judicial

Legislative:

- 1 Senate
- 2 House of Representatives
- 3 Legislative, Miscellaneous
- 4 Capitol Buildings and Grounds
- 5 Government Printing Office.

Executive:

- 6 President, Vice-President, and White House Staff
- 7 Civil Service Commission
- 8 Bureau of Efficiency
- 9 Tariff and Other Commissions.

State Department:

- 10 State Department Proper
- 11 Diplomatic and Consular Service.

Treasury:

- 12 Administrative, Bookkeeping and Warrants, Clerical and Miscellaneous
- 13 Auditors, Comptroller, Treasurer, and Registrar of the Treasury
- 14 Customs
- 15 Internal Revenue
- 16 Coast Guard
- 17 Bureau of Printing and Engraving
- 18 Independent Treasury, Mint and Assay Offices
- 19 Fiscal: Comptroller of Currency, Public Moneys, Loans and Currency, Farm Loans, etc.

Interior Department:

- 20 Office of Secretary and Miscellaneous
- 21 Land Office and Land Service
- 22 Patent Office

- 23 Hospitals and Relief
- 24 Territorial Governments
- 25 Indian Office and Indian Service.

Post Office Department:

- 26 Post Office Department Proper
- 27 Postal Service Miscellaneous
- 28 Postal Service Deficiency or Surplus.

Department of Agriculture:

- 29 Statutory Salaries and Miscellaneous Expenses
- 30 Meat Inspection Service
- 31 Acquisition of Land to Protect Water Sheds
- 32 Enforcement of Grain Standards, the Pure Food Law, and Animal and Plant Quarantine, etc.

Department of Commerce:

- 33 Office of Secretary and Miscellaneous
- 34 Bureau of Navigation
- 35 Steamboat Inspection Service
- 36 Bureau of Lighthouses
- 37 Bureau of Foreign and Domestic Commerce.

Department of Labor:

- 38 Office of Secretary and Miscellaneous
- 39 Immigration and Naturalization.

Department of Justice:

- 40 Salaries, Expenses, and Sundries.

Judicial:

- 41 Federal Courts and Penal Establishments.

Independent Commissions, Etc.:

- 42 Interstate Commerce Commission
- 43 Federal Trade Commission
- 44 Employes' Compensation Commission
- 45 Miscellaneous Commissions
- 46 District of Columbia
- 47 Panama Canal—Maintenance and Operation
- 48 Public Buildings and Grounds—Maintenance and Operation
- 49 Extraordinary Expenses.

GROUP II RESEARCH, EDUCATION AND DEVELOPMENTAL WORK

Department of Agriculture:

- 50 Forest Service
- 51 Bureau of Animal Industry

- 52 Bureau of Plant Industry
- 53 State Relations Service (Agric. Expt. Stations before 1915)
- 54 Coöperative Agricultural Extension Work
- 55 Office of Markets and Rural Organization
- 56 Weather Bureau
- 57 Bureau of Entomology
- 58 Bureau of Chemistry
- 59 Bureau of Biological Survey
- 60 Bureau of Public Roads and Rural Engineering
- 61 Bureau of Soils
- 62 Bureau of Crop Estimates
- 63 Bureau of Farm Management and Farm Economics
- 64 Horticultural and Insecticide Boards
- 65 Miscellaneous.

Department of Interior:

- 66 Geological Survey
- 67 Bureau of Mines
- 68 Bureau of Education and Howard University.

Department of Commerce:

- 69 Coast and Geodetic Survey
- 70 Bureau of Standards
- 71 Bureau of Fisheries
- 72 Bureau of the Census.

Miscellaneous:

- 73 Public Health Service (Treasury Department)
- 74 Bureau of Labor Statistics (Dept. of Labor)
- 75 Children's and Women's Bureau (Dept. of Labor)
- 76 Library of Congress
- 77 Smithsonian Institution and National Museum
- 78 Colleges for Agriculture and Mechanic Arts (Land Grant)
- 79 Federal Board for Vocational Education
- 80 National and District of Columbia Parks; Botanical Gardens.

GROUP III PUBLIC WORKS

- 81 Rivers and Harbors
- 82 Panama Canal Construction
- 83 Public Buildings, New Construction (Supervising Architect's Office)
- 84 Rural Post Roads and Forest Roads

- 85 Alaska Railway
- 86 Reclamation Service.

GROUP IV ARMY AND NAVY

- 87 War Department (Except Rivers and Harbors, etc.)
- 88 Navy Department
- 89 Armament and Fortifications, Panama Canal
- 90 Maintenance and Care, State, War and Navy Buildings.

GROUP V PENSIONS AND CARE OF SOLDIERS, ETC.

- 91 Pension Office and Pensions
- 92 War Risk Insurance
- 93 Rehabilitation of Soldiers, Federal Board for Vocational Education
- 94 Care of Soldiers—Public Health Service.

GROUP VI OBLIGATIONS ARISING FROM THE RECENT WAR

- 95 Railroad Administration
- 96 Shipping Board
- 97 Food and Fuel Administration
- 98 Miscellaneous Boards and Commissions
- 99 Special War Activities.

GROUP VII INTEREST

- 100 Interest on the Public Debt
- 101 Interest on Loans and Trust Funds.

GROUP VIII PUBLIC DEBT, LOANS AND TRUST FUNDS

- 102 Public Debt Transactions
- 103 Loans to European Governments
- 104 Loans to Farmers, Banks, or Purchase of Stock
- 105 Seigniorage
- 106 Trust Funds.

GROUP IX REVENUES

- 107 Customs
- 108 Internal Revenue
- 109 Tax on National Bank Circulation
- 110 Post Office War Revenue
(Sales of Government Lands are credited to the Reclamation Service.)

It is of course impossible to make a perfectly logical group classification

of government activities without splitting up some bureaus into parts, as many perform both governmental and educational or developmental functions. In such cases the bureau is classed according to its major activities.

The first five items of group I are clearly governmental, but the Library of Congress, our national library (which also is included under legislative in the appropriations) is assigned to group II because its functions are primarily educational rather than governmental, although the copyright division taken by itself would have been classed with group I. Items 7, 8 and 9 are the civil commissions reporting directly to the President, given in appropriation bills under executive, although items 42 and 45 (under the heading independent commissions) also report directly to the President. Items 10 and 11, covering the State Department, are obviously governmental and belong in group I. Items 12 to 19 include all the functions of the Treasury Department except the Public Health Service, part of which is included under group II (item 73) and part in group V (item 94); the work of the supervising architect's office, maintenance and operation of public buildings (item 48) and construction of public buildings (item 83); and the War Risk Insurance, item 92 of group V.

In the Interior Department, items 20 to 25 cover the governmental functions, whereas the Geological Survey, Bureau of Mines, Bureau of Education and Howard University (items 66 to 68) are in group II because of their research and educational work, and the Reclamation Service (item 86) is in group III because it is so largely new construction. The Post Office Department proper includes the salaries and expenses of the overhead administration in the District of Columbia, and item 27 includes minor miscellaneous

items. Item 28 is the deficiency or surplus, usually brought over once a year, from the postal service fund, which is kept separate in the Treasury, to which is credited all the revenues from the entire postal service and to which is charged the entire operating expenses of the postal service. The result of this is that the net cost of the entire Post Office Department appears each year in the sum of items 26, 27 and 28, and as already explained there was a surplus in five of the ten years from 1910 to 1919, inclusive, and a slightly larger aggregate deficit in five. In 1920, there was a relatively large deficit because of increase in salaries to postal employes and additional compensation to the railroads.

In the Department of Agriculture, items 29 to 32 cover governmental functions and items 50 to 65 in group II the research and educational work. Item 29 includes the statutory salaries, mainly administrative and clerical, for all the bureaus; they are not given separately for each bureau in the Treasury publications. It is believed that by charging this item to group I and the lump sum appropriations to the respective bureaus in group II, we have a fair allocation of expenses between the governmental and educational work.

In the Department of Commerce it is difficult to make a decision in some cases, as between groups I and II, but it is believed that the grouping given is a fair division. If the bureaus were to be split up and a more detailed classification made, the amounts allotted to group II would probably be somewhat reduced. The Department of Labor is divided between group I (items 38 and 39) and group II (items 74 and 75). The remaining items of group I are self explanatory, the District of Columbia item being, since 1878, one-half the expenses of the

	1910	1911	1912	1913	
<i>Receipts Minus Refunds</i>					
1 Customs, less Refunds	\$323,519,307.50	\$303,068,042.49	\$301,770,569.79	\$310,257,199.09	\$28,511,938.30
2 Internal Revenue, less Refunds	289,144,650.88	321,819,961.99	320,978,529.60	343,418,743.77	37,544,672.89
3 Tax on National Bank Circulation	3,333,011.03	3,503,502.48	3,637,008.78	3,730,059.08	1,466,548.30
4 Postal War Revenue (3 years only)					
5 Total Tax Revenue	\$615,996,969.41	\$628,391,506.96	\$626,386,108.17	\$657,406,001.94	\$667,096,581.97
6 Trust Funds, Loans, Seigniorage	5,424,713.60	4,637,317.17	4,803,517.38	4,786,537.29	2,811,982.83
7 Increase or Decrease* in Public Debt	—1,375,403.00*	22,650,852.65	24,247,683.47	—790,760.50*	—
8 Amount Drawn from General Fund*	19,456,189.67	—33,122,417.90*	—27,099,755.37*	1,359,874.74	—
9 Total	\$639,502,469.68	\$622,557,258.88	\$628,337,553.65	\$662,761,653.47	\$677,959,324.10
<i>Expenditures Minus Earnings</i>					
10 Civil Expenditures, Group I	\$102,227,954.95	\$83,682,691.22	\$92,376,832.94	\$92,858,187.72	\$9,576,653.76
11 Civil Expenditures, Group II	25,394,032.14	27,395,496.67	22,249,437.78	21,611,972.83	2,782,558.96
12 Civil Expenditures, Group III	79,503,700.48	85,562,799.85	87,885,581.92	95,568,921.40	9,782,718.15
13 Total for Groups I—III	\$207,125,687.57	\$196,640,987.74	\$202,511,852.64	\$210,039,081.95	\$22,142,930.87
14 Army and Navy, Group IV	247,225,024.80	243,019,696.37	247,018,429.59	250,205,645.88	26,960,969.41
15 Pensions, Care of Soldiers, V	162,568,509.54	159,776,148.15	155,344,785.52	177,305,117.04	17,766,864.29
16 Special War Activities, VI					
17 Interest on Public Debt, etc., VII	22,583,247.77	23,120,426.62	23,462,485.90	25,211,808.60	2,148,500.31
18 Total for Groups I—VII	\$639,502,469.68	\$622,557,258.88	\$628,337,553.65	\$662,761,653.47	\$677,959,324.10

CONDENSED SUMMARY, OMITTING

<i>Net Revenue</i>					
Customs	\$323,519,307.50	\$303,068,042.49	\$301,770,569.79	\$310,257,199.09	\$28,511,938.30
Internal Revenue	289,144,650.88	321,819,961.99	320,978,529.60	343,418,743.77	37,544,672.89
Tax on National Bank Circulation	3,333,011.03	3,503,502.48	3,637,008.78	3,730,059.08	1,466,548.30
Postal War Revenue (3 years only)					
Total Net Revenue	\$615,996,969.41	\$628,391,506.96	\$626,386,108.17	\$657,406,001.94	\$667,096,581.97
<i>Net Expense</i>					
Civil, Groups I, II and III	\$207,125,687.57	\$196,640,987.74	\$202,511,852.64	\$210,039,081.95	\$22,142,930.87
Army and Navy, Group IV	247,225,024.80	243,019,696.37	247,018,429.59	250,205,645.88	26,960,969.41
Pensions, Interest and War Miscellaneous	185,151,757.31	182,896,574.77	178,807,271.42	202,516,925.64	19,560,812.25
Total Net Expense	\$639,502,469.68	\$622,557,258.88	\$628,337,553.65	\$662,761,653.47	\$677,959,324.10
Net Revenue from Taxation	615,996,969.41	628,391,506.96	626,386,108.17	657,406,001.94	666,534,671.10
Deficit of Revenues below Current Expenses	\$23,505,500.27		\$1,951,445.48	\$5,355,651.53	\$10,924,652.80
Surplus of Revenues over Current Expenses		\$5,834,248.08			

* Amounts with minus sign prefixed are to be subtracted.

TABLE 1

SUMMARY OF RECEIPTS AND EXPENDITURES OF THE UNITED STATES FOR THE FISCAL YEARS, 1910-1920

1911	1912	1913	1914	1915	1916	1917
\$303,068,042.49 321,819,961.99 3,503,502.48	\$301,770,569.79 320,978,529.60 3,637,008.78	\$310,257,199.09 343,418,743.77 3,730,059.08	\$283,773,870.45 379,014,964.16 3,883,198.14	\$197,663,176.16 413,451,384.03 3,908,606.90	\$194,356,351.59 510,445,023.32 3,838,034.25	\$206,027,585.4 805,352,624.6 3,611,802.4
\$628,391,506.96 4,637,317.17 22,650,852.65 —33,122,417.90*	\$626,386,108.17 4,803,517.38 24,247,683.47 —27,099,755.37*	\$657,406,001.94 4,786,537.29 —790,760.50* 1,359,874.74	\$666,672,032.75 6,998,319.27 —3,940,104.50* 4,479,861.14	\$615,023,167.09 958,216.50 5,233,464.00 58,497,608.35	\$708,639,409.16 7,268,254.39 33,783,489.00 —75,461,132.88*	\$1,014,992,012.4 —887,088,401.5 1,750,473,017.3 —788,912,355.5
\$622,557,258.88 \$83,682,691.22 27,395,496.67 85,562,799.85	\$628,337,553.65 \$92,376,832.94 22,249,437.78 87,885,581.92	\$662,761,653.47 \$92,858,187.72 21,611,972.83 95,568,921.40	\$674,210,108.66 \$91,313,408.17 22,874,599.18 95,974,380.41	\$679,712,455.94 \$106,826,332.38 30,060,474.01 94,401,735.92	\$674,230,019.67 \$114,742,624.99 27,719,283.86 58,965,247.50	\$1,089,464,272.7 \$108,676,368.1 28,424,545.6 62,759,736.2
\$196,640,987.74 243,019,696.37 159,776,148.15 23,120,426.62	\$202,511,852.64 247,018,429.59 155,344,785.52 23,462,485.90	\$210,039,081.95 250,205,645.88 177,305,117.04 25,211,808.60	\$210,162,387.76 264,814,046.88 175,636,698.82 23,596,975.20	\$231,288,542.31 258,465,249.71 166,314,583.08 23,644,080.84	\$201,427,156.35 288,051,628.44 161,133,769.27 23,617,465.61	\$199,860,650.0 668,852,948.5 162,094,248.5 25,595,915.7
\$622,557,258.88	\$628,337,553.65	\$662,761,653.47	\$674,210,108.66	\$679,712,455.94	\$674,230,019.67	\$1,089,464,272.7

CONDENSED SUMMARY, OMITTING LOANS, TRUST FUNDS AND PUBLIC DEBT

\$303,068,042.49 321,819,961.99 3,503,502.48	\$301,770,569.79 320,978,529.60 3,637,008.78	\$310,257,199.09 343,418,743.77 3,730,059.08	\$283,773,870.45 379,014,964.16 3,883,198.14	\$197,663,176.16 413,451,384.03 3,908,606.90	\$194,356,351.59 510,445,023.32 3,838,034.25	\$206,027,585.4 805,352,624.6 3,611,802.4
\$628,391,506.96	\$626,386,108.17	\$657,406,001.94	\$666,672,032.75	\$615,023,167.09	\$708,639,409.16	\$1,014,992,012.4
\$196,640,987.74 243,019,696.37 182,896,574.77	\$202,511,852.64 247,018,429.59 178,807,271.42	\$210,039,081.95 250,205,645.88 202,516,925.64	\$210,162,387.76 264,814,046.88 199,233,674.02	\$231,288,542.31 258,465,249.71 189,958,663.92	\$201,427,156.35 288,051,628.44 184,751,234.88	\$199,860,650.0 668,852,948.5 220,750,674.1
\$622,557,258.88 628,391,506.96	\$628,337,553.65 626,386,108.17	\$662,761,653.47 657,406,001.94	\$674,210,108.66 666,672,032.75	\$679,712,455.94 615,023,167.09	\$674,230,019.67 708,639,409.16	\$1,089,464,272.7 1,014,992,012.4
..... \$5,834,248.08	\$1,951,445.48	\$5,355,651.53	\$7,538,075.91	\$64,689,288.85	..... \$34,409,389.49	\$74,472,260.2

ED STATES FOR THE FISCAL YEARS, 1910-1920

	1915	1916	1917	1918	1919	1920
	\$197,663,176.16 413,451,384.03 3,908,606.90	\$194,356,351.59 510,445,023.32 3,838,034.25	\$206,027,585.45 805,352,624.60 3,611,802.43	\$167,073,638.00 3,690,878,547.22 4,691,310.26 39,073,000.00	\$171,110,221.07 3,828,182,672.90 3,806,646.42 71,906,000.00	\$296,274,230.35 5,379,353,019.56 7,172,598.48 4,913,000.00
	\$615,023,167.09 958,216.50 5,233,464.00 58,497,608.35	\$708,639,409.16 7,268,254.39 33,783,489.00 —75,461,132.88*	\$1,014,992,012.48 —887,088,401.56* 1,750,473,017.36 —788,912,355.55*	\$3,901,716,495.48 —4,849,252,464.59* 9,268,010,134.48 348,226,757.20	\$4,075,005,540.39 —3,896,042,687.05* 13,238,410,506.62 1,059,381,136.56	\$5,687,712,848.39 —513,885,254.18* —1,184,098,321.46* 618,801,852.61
	\$679,712,455.94 \$106,826,332.38 30,060,474.01 94,401,735.92	\$674,230,019.67 \$114,742,624.99 27,719,283.86 58,965,247.50	\$1,089,464,272.73 \$108,676,368.16 28,424,545.60 62,759,736.29	\$8,668,700,922.57 \$125,204,304.32 34,773,717.53 62,480,263.29	\$14,476,754,496.52 \$139,646,546.41 37,879,567.00 54,332,138.99	\$4,608,531,125.36 \$224,110,594.18 57,368,773.98 85,071,042.11
	\$231,288,542.31 258,465,249.71 166,314,583.08 23,644,080.84	\$201,427,156.35 288,051,628.44 161,133,769.27 23,617,465.61	\$199,860,650.05 668,852,948.57 162,094,248.54 33,060,509.83 25,595,915.74	\$222,458,285.14 7,045,295,897.42 228,641,990.19 1,094,994,128.53 77,310,621.29	\$231,858,252.40 11,192,817,468.69 319,714,708.78 2,487,710,884.88 244,653,181.77	\$366,550,410.27 1,348,892,746.59 329,261,746.24 1,634,695,094.56 929,131,127.70
	\$679,712,455.94	\$674,230,019.67	\$1,089,464,272.73	\$8,668,700,922.57	\$14,476,754,496.52	\$4,608,531,125.36

TRUST FUNDS AND PUBLIC DEBT

	\$197,663,176.16 413,451,384.03 3,908,606.90	\$194,356,351.59 510,445,023.32 3,838,034.25	\$206,027,585.45 805,352,624.60 3,611,802.43	\$167,073,638.00 3,690,878,547.22 4,691,310.26 39,073,000.00	\$171,110,221.07 3,828,182,672.90 3,806,646.42 71,906,000.00	\$296,274,230.35 5,379,353,019.56 7,172,598.48 4,913,000.00
	\$615,023,167.09 \$231,288,542.31 258,465,249.71 189,958,663.92	\$708,639,409.16 \$201,427,156.35 288,051,628.44 184,751,234.88	\$1,014,992,012.48 \$199,860,650.05 668,852,948.57 220,750,674.11	\$3,901,716,495.48 \$222,458,285.14 7,045,295,897.42 1,400,946,740.01	\$4,075,005,540.39 \$231,858,252.40 11,192,817,468.69 3,052,078,775.43	\$5,687,712,848.39 \$366,550,410.27 1,348,892,746.59 2,893,087,968.50
	\$679,712,455.94 615,023,167.09	\$674,230,019.67 708,639,409.16	\$1,089,464,272.73 1,014,992,012.48	\$8,668,700,922.57 3,901,716,495.48	\$14,476,754,496.52 4,075,005,540.39	\$4,608,531,125.36 5,687,712,848.39
	\$64,689,288.85 .....	..... \$34,409,389.49	\$74,472,260.25	\$4,766,984,427.09	\$10,401,748,956.13 .....	..... \$1,079,181,723.03

District in lieu of taxes on federal property; recently, however, the ratio of expense has been changed by Congress to 40 per cent by the Federal Government and 60 per cent by the District. Both the War and Navy Departments are, of course, doing a large amount of scientific and engineering work, but as it is of direct military application, it is proper to leave it in group IV. The Naval Observatory, however, is doing astronomical work of a scientific rather than naval character and might have been included in group II. Further explanation of these various activities will follow.

Before proceeding to an examination of the activities of the government in the various groups, let us examine the summarized balance sheet for the eleven fiscal years, 1910-20, showing the receipts from taxation and net disbursements for current expenses, as well as the total of loans and trust funds and the net balance each year of public debt transactions.

Net Revenue and Net Expenses

The accompanying table 1 gives a summarized balance sheet of government net revenues and net expenditures for the eleven fiscal years 1910-1920, inclusive, that is, from July 1, 1909 to June 30, 1920. This is the result of the detailed analysis mentioned above of the government's receipts and expenditures for this period, and may be given here in order to obtain a general view of the expenditures by groups before proceeding to a more detailed consideration of the functions and costs of the activities within the various groups.

Line 1 gives the customs receipts less refunds, that is, the net revenue to the Treasury from customs. These amounts differ from the amounts given in the Treasury reports, as the latter

give under "receipts" the gross receipts (including overpayments and deposits intended to be refunded) and include under "disbursements" the refunds along with expenses. Line 2 gives in the same way the internal revenue receipts less refunds, that is, the net revenue, after refunds are deducted. Line 3 gives the tax on national bank circulation, which is a taxation for revenue, and not payment for a service rendered. Line 4 gives the revenue derived from the Post Office during the war period when three cent letter postage was in effect, the third cent having been a war tax and the entire proceeds turned into the Treasury. Line 5 gives the total revenue derived from taxation, being the sum of the above four items.

Line 6 gives the receipts in excess of disbursements (or vice versa) of loans, trust funds and seigniorage in connection with coinage. Up to 1916 the receipts each year were in excess of disbursements; since then, due to loans to European governments, the disbursements have largely exceeded the receipts. Line 7 gives the balance of public debt transactions. When the payments exceeded the receipts, the public debt decreased and the amount is preceded by a minus sign and marked with a star; in such cases the amount is to be subtracted in making the additions. Line 8 gives the amount that was expended from the general fund; in other words, the increase or decrease of cash on hand in the Treasury at the end of each year as compared with the beginning. A minus sign indicates that more was put into the general fund than drawn out; that is, the general fund increased during the year. Line 9 gives the sum of net revenues from taxation and net funds available from the above-named financial transactions; that is, the total

sum available to pay the expenses of the government for each year.

Line 10 gives the total net expenses for the civil activities of the government included in group I, that is, the legislative, executive and judicial group. Line 11 gives the expenses for group II, research, education and development. Line 12 gives the expenses for group III, the new construction classed as public works. Line 13 gives the total for these three civil groups, which averages \$211,337,288 per year for the ten years 1910-19, inclusive, or \$2.14 per capita of the population of the country.

Line 14 gives the net expenses for the army and navy, group IV; line 15 gives pensions and care of soldiers and War Risk Insurance during the war; line 16 gives the cost of the special war activities during the years 1917-20 inclusive; line 17 gives interest charges, being interest on the public debt and trust funds, less interest received and also in recent years less discount on liberty bonds repurchased. Line 18 gives the total of the current expenses of each year, equal to the sums given in line 9.

Below is given a more condensed statement of net revenue and net expense with loans, trust funds and public debt transactions omitted, showing the surplus or deficit each year. There was a deficit of net revenue from taxation below net expenses every year except 1911, 1916 and 1920. The surplus in 1920 was \$1,079,181,723.03, counting loans as investments and not expenses. This surplus was used together with a considerable sum from the general fund in making loans to farmers and to European governments, and in reducing the public debt, the latter having been reduced by \$1,184,098,321.46 during the fiscal year 1920.

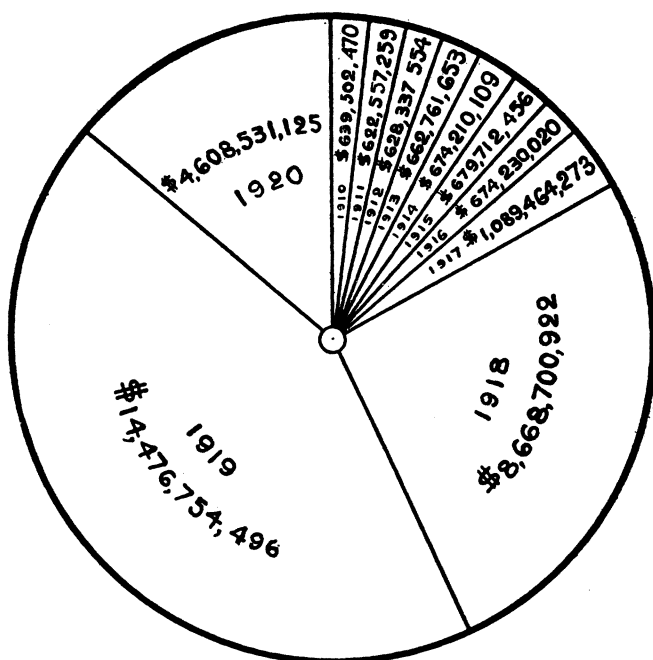
Figure 1 shows graphically the relative net expenses of the government

during the eleven-year period, with a total of \$33,424,762,337, not including the loans to European governments and other loans and trust funds, and figure 2 shows the relative revenues during the same period and plotted to the same scale.

The Cost of the War

From the figures given in Table 1, it is possible to calculate the expenditures on account of the war over and above what would probably have been expended had the war not occurred. Figure 3 gives a graphical representation of the expenditures during the eleven fiscal years 1910-20, divided into three parts. At the left are the total net expenses of the government shown in a series of small rectangles, from 1910 to 1916, inclusive, drawn to scale. Below these seven years are the four years 1917-20, with the expenses estimated as what they would have been if the war had not occurred. These are the total net expenses of groups I, II and III, plus the estimated expenses for the Army and Navy, \$275,000,000 per year, pensions \$160,000,000 per year, interest on the public debt \$25,000,000; total for these three items \$460,000,000. The excess over this sum of the expenditures for groups IV, V, VI and VII during these four years is plotted at the right as the cost of the war. The amount of loans to European governments is plotted below the war cost on the same scale.

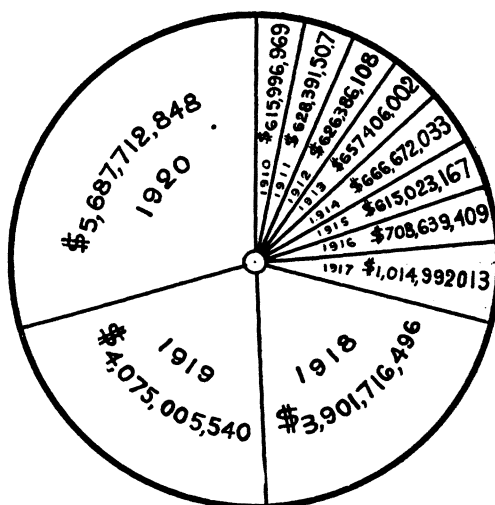
Table 2 in the first column gives the excess of the expenses of the government over the estimated normal expense as shown in Figure 3. The second column gives the excess of revenues from taxation over the same estimated normal expense. The sums of these amounts for four years gives in the first column the total expenditures on account of the war



TOTAL NET EXPENSES FOR ALL PURPOSES
\$33,424,762,337
 (Not including loans, trust funds, etc.)

FIGURE 1

Fig. 1 represents the total net current expenses of the government for the period, excluding payments on the Public Debt, loans and trust funds. Fig. 2 represents the total net tax revenue, comprising the Internal Revenue and Customs less refunds and rebates, the tax on National Bank circulation and the extra postage war revenue during the years 1918-1920. The two figures correspond respectively to lines 18 and 5 of Table 1. The scale to which they are drawn is such that unit area represents the same amount of money in both.



TOTAL NET TAX REVENUE
\$19,197,942,092

FIGURE 2

1910	NET NORMAL EXPENSES 11 YEAR TOTAL—\$7,442,039,118	← 1917	1918	1919	1920
1911					
1912					
1913					
1914					
1915					
1916					
1917					
1918	LOANS TO EUROPEAN GOVERNMENTS \$9,445,006,855	1917	1918	1919	1920 →
1919					
1920					
COST OF THE WAR \$25,982,723,219					

FIGURE 3

Fig. 3 represents the total net current expenses in the years 1910-1920, and in addition the net loans (less repayments) to European governments during that period. The expense items are the same as those in Fig. 1, but are shown segregated into normal expense and war cost during the years 1917-1920. The details and the basis of segregation are given in Table 3.

(excluding loans to European governments and all domestic loans) and in the second column the amount paid from current revenues from taxation in four years toward liquidating the cost of the war. The ratio of the second total to the first is 45.5 per cent. In other words, in these four years, we have paid over and above the estimated normal expenses of the government 45.5 per cent of the cost of the war, leaving 54.5 per cent to be

this expenditure? What is the reason for so many departments and bureaus? Is it practicable or desirable to reduce the number or to abandon some of the work done? Figure 4 shows the average net expenditures by departments, and figure 5 the average total expenditures, earnings (in black) and the net expenses, somewhat more detailed than in figure 1.

First of all is the legislative branch of the government, the Senate and

TABLE 2

	Excess of expenditures over estimated normal expenditures on a pre- war basis	Excess of revenue over estimated cost of government on a pre- war basis
1917.....	\$429,603,623	\$355,131,362
1918.....	7,986,242,636	3,219,258,211
1919.....	13,784,896,245	3,383,147,288
1920.....	3,781,980,715	4,861,162,439
Total.....	\$25,982,723,219	\$11,818,699,300

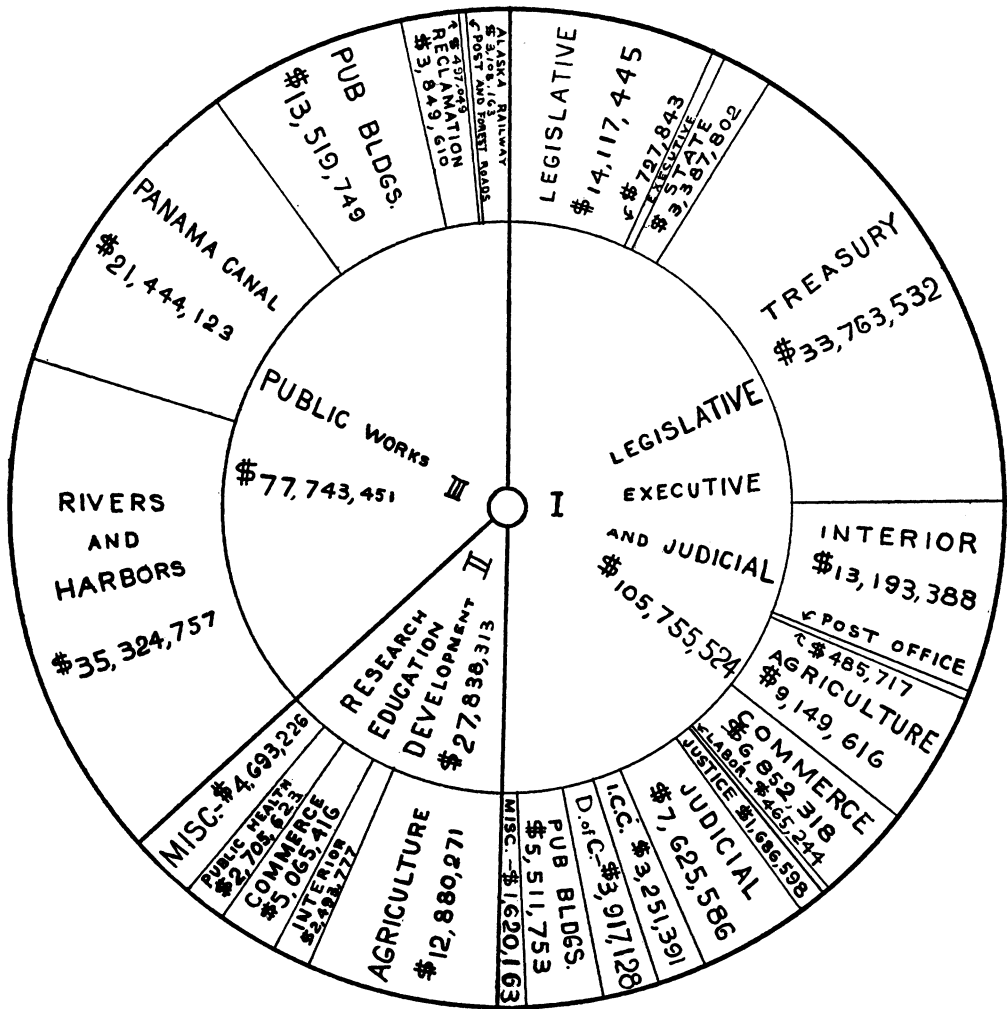
paid in the future, in addition to all the indirect and continuing costs not included in the above. This assumes that loans to European governments will be paid, principal and interest, as well as domestic loans, and leaves out of account the further expenses of the railroad administration, the permanent increased costs of the Army and Navy, pensions and war risk insurance, shipping board, etc., as well as the permanent increases in the cost of all civil activities of the government.

Group I Primary Governmental Functions

The wide range of activities included in group I comprise the legislative, executive and judicial functions of a great government, and cost the people of this country \$105,755,525 per year on the average for the ten fiscal years, 1910-19, inclusive. It is a fair question to ask, what is accomplished by

House of Representatives and the clerical and operating staff for the Capitol and the Senate and House Office buildings, and the maintenance of the Capitol buildings and grounds, with an average expenditure for ten years of \$8,347,167. This includes also under legislative miscellaneous during this period, the greater portion of the cost of the beautiful memorial to Abraham Lincoln, now nearing completion.

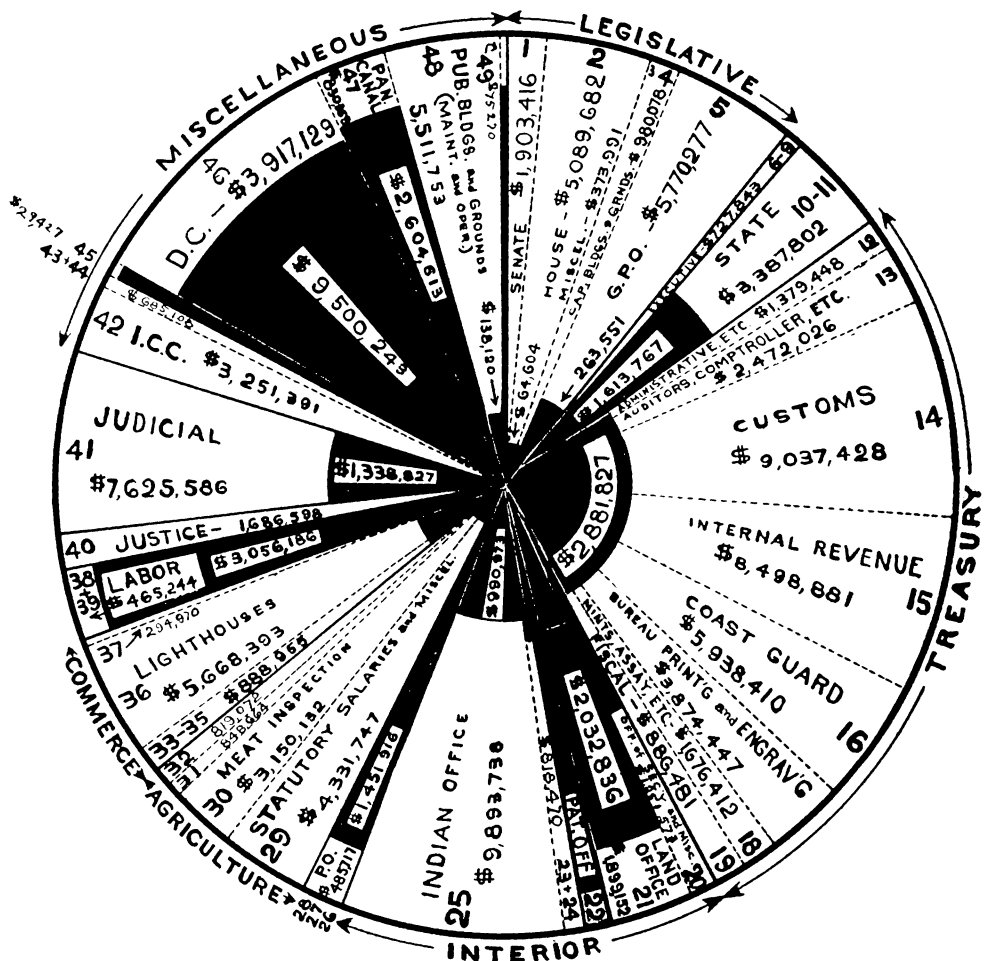
The government printing office, which serves all branches of the government, legislative, executive and judicial, and is one of the largest printing offices in the world, expended an average of \$5,770,278 above receipts. This seems a large sum, but it is only about five cents per capita per year of the population of the country, and when we consider the great variety of work done by the government, and that a large part of it is valueless unless made known by publication and utilized



GROUPS I, II and III — CIVIL ACTIVITIES
 AVERAGE NET EXPENDITURE—1910-1919—\$211,337,288

FIGURE 4

Fig. 4 shows in some detail the items which appear in the first third of Fig. 9, but on a larger scale and with the average amounts expended for the separate activities inserted. The sum shown for the Post Office is the average net cost payable from taxation, including all deficits and surpluses, and was \$485,717 per year for the ten-year period. The net expense of the Labor Department is small because of the large receipts from the Immigration Service. The District of Columbia paid into the Treasury more than one-half its total net expenses for the ten-year period, so that the cost to the Federal Government as shown in the chart is less than one-half the total net cost of its administration. Interior, Agriculture, Commerce and Labor are divided between Groups I and II, the primary governmental part being included in Group I and the functions that concern research, educational and developmental work are included in Group II.



GROUP I - PRIMARY GOVERNMENTAL FUNCTIONS

AVERAGE ANNUAL EXPENDITURES AND EARNINGS 1910-1919



TOTAL AREA OF SECTOR REPRESENTS GROSS DISBURSEMENT
 SHADED AREA REPRESENTS RECEIPTS
 UNSHADED AREA REPRESENTS NET EXPENDITURE

FIGURE 5

The numbers associated with each sector correspond to the number of the item in the classification followed. While the average annual gross expenditure for the ten-year period was \$137,838,924, the average annual net expenditure for the period was \$105,755,525.

It should be noted that the receipts for the Treasury sub-groups refer only to fees, fines, forfeits and miscellaneous earnings, and do not include any of the internal revenue and custom taxes collected, these being separately itemized in Group IX—Revenues.

by the people interested, it seems very moderate if not indeed inadequate. During this ten-year period, paper and printing outside the government has more than doubled in cost, and yet the expenditure by the government printing office increased very little until 1918 and less than 50 per cent during 1918 and 1919 over the 1910-17 average, notwithstanding the great increase in governmental activities due to the war during those years, and the great increase in the cost of materials and labor. In some departments there have been little or no increases in appropriations in recent years, notwithstanding the large increase in printing costs and the growth of their work. This, of course, means a very considerable reduction in printing and less educational work in proportion, which in some departments at least was very seriously felt.

The average expenditure for the President, Vice-President and White House staff was \$201,045 per year, and for the Civil Service and Tariff Commissions and the Bureau of Efficiency together, \$526,798, the entire executive group costing less than one cent per year per capita of the country's population.

The Civil Service Commission is one of the lowest paid branches of the service, and its staff is so inadequate for the great volume of work thrown upon it that it has had to borrow more than two hundred men and women from other departments to keep up with its most urgent work. It has been unable even to attempt to do generally throughout the service the very important work of supervision and coöperation with administrative officers that the Civil Service law contemplates. The Bureau of Efficiency occupies an important field, part of what a budget bureau would be expected to cover.

Surely one would expect in a reorgan-

ized and developed government service that this group of activities included under "executive" would be considerably expanded rather than curtailed, and that in the interest of efficiency and good government more money rather than less would be expended upon it.

The State Department is our department of foreign affairs. It conducts correspondence and negotiations with foreign governments, deals with the representatives of foreign governments in this country, is the channel of communication between the President and the chief executives of all the separate states, and records and promulgates all laws passed by Congress. It maintains diplomatic and consular representatives in nearly all countries of the world. Aside from the salaries of a large staff of accredited representatives and their assistants and clerks, the cost of travel and communication is necessarily very large. The war threw an enormously increased responsibility on the State Department, both at home and abroad, and its net expenditures increased from an average of \$2,614,643 during the period 1910-16 to \$3,648,075 in 1917, \$4,677,254 in 1918, \$7,250,190 in 1919 and \$8,520,517 in 1920. Americans who traveled abroad before the war felt the need of more adequate provision for our foreign representatives, and if the increased appropriations of the last few years have enabled the State Department under these trying conditions to overcome some of the handicaps of the past, and to cope adequately with the problems brought on by the war, we ought to be grateful for the more generous appropriations.

The Treasury Department not only handles the fiscal affairs of the government, but it supervises the banking of the nation. It maintains the national currency, collects the revenues, turns over to disbursing officers in all de-

TABLE 3
AGGREGATE EXPENDITURES AND FOREIGN LOANS OF U. S. GOVERNMENT
FISCAL YEARS 1910-1920

Year	Normal Net Expense	Net War Cost (Excess above estimated normal expenses)				Loans to European Govts. (less repayments)
		Excess Army and Navy	Excess Interest, Pensions, etc.	Special War Activities	Total War Cost	
1910.....	\$639,502,470					
1911.....	622,557,259					
1912.....	628,337,554					
1913.....	662,761,653					
1914.....	674,210,109					
1915.....	679,712,456					
1916.....	674,230,020					
1917.....	659,860,650*	\$393,852,949	\$2,690,164	\$33,060,510	\$429,603,623	\$885,000,000
1918.....	682,458,285*	6,770,295,897	120,952,611	1,094,994,128	7,986,242,636	4,739,434,750
1919.....	691,858,252*	10,917,817,469	379,367,891	2,487,710,885	13,784,896,245	3,470,280,265
1920.....	826,550,410*	1,073,892,747	1,073,392,874	1,634,695,094	3,781,980,715	350,291,840
Total.....	\$7,442,039,118	\$19,155,859,062	\$1,576,403,540	\$5,250,460,617	\$25,982,723,219	\$9,445,006,855

* Assuming the following as normal for 1917 to 1920 if the war had not occurred:		
Army and Navy.....	\$275,000,000	Net Normal Expense, 11 yrs.
Pensions and Care of Soldiers.....	160,000,000	War Cost, 4 yrs.
Interest.....	25,000,000	Loans to Europ. Govts. 4 yrs.
Total.....		\$42,869,769,192

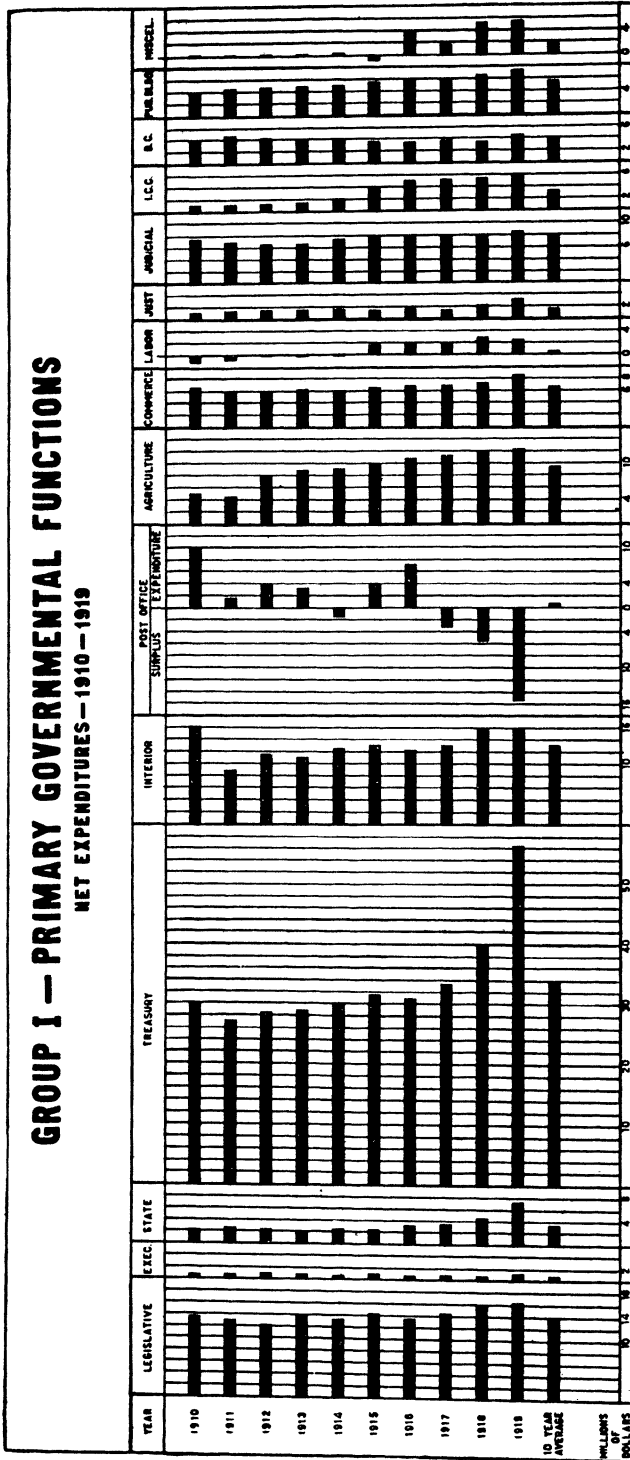


FIGURE 6

This figure shows the distribution of the net expenses of the sub-groups in Group I for each year and for the ten-year average.

The increases since 1916 in the State, Treasury, and Justice Departments are in large part attributable to increased activities resulting from the war; as for example, the expansion of the Diplomatic and Consular Service, and the increased allowances necessitated by increased living costs abroad, as well as increased administrative overhead; the collection and disbursement of the large sums required to meet the cost of the war; and added activities incident to the anti-profitteering, sedition and espionage acts.

In the case of the Post Office, Labor and Miscellaneous sub-groups, a line drawn to the right represents a net expenditure and a line drawn to the left represents an excess of receipts over disbursements.

The large expenditure in the Interior Department in 1910 is explained by a court judgment in favor of the Indians for over \$4,000,000, which was paid during that year.

The miscellaneous item includes the Federal Trade Commission, the Employees Compensation and Retirement Commissions, the Federal Reserve Board, maintenance and operation of the Panama Canal and of public buildings.

partments the funds appropriated by Congress as they are required, audits all bills and the accounts of disbursing officers, keeps the accounts and records of all fiscal transactions of the government, and assembles and forwards to Congress the estimates for all branches of the government. The Secretary of the Treasury submits to Congress estimates of the probable revenues and disbursements of the government, makes recommendations regarding the raising of revenue, manages the sale and redemption of bonds and other measures for the support of the public credit. The department controls the construction and maintenance of public buildings throughout the country; the coinage and printing of money; and the engraving and printing of postage stamps, bonds and other documents. It administers the Coast Guard (the successor of the Revenue Cutter Service and the Life Saving Service), and has charge of the Public Health Service listed in group II with other scientific and educational work. It also has charge of the War Risk Insurance of group V. It manages the extensive customs service at all the ports and gateways of the country, inspecting, testing, and measuring imports, classifying and appraising the same, levying and collecting the customs duties thereon. It manages, through the Commissioner of Internal Revenue, the collection of all income and other internal revenue taxes; the enforcement of internal revenue laws and the national Prohibition Act. This is the largest division of the Treasury Department and collects the great bulk of the revenue of the government. More than five billions of dollars were collected last year, at a cost for collection of only 0.6 per cent, including the cost of enforcing all the revenue and prohibition laws.

This is a remarkable business organi-

zation, of which the Treasury Department is proud, and there are large numbers of people in the country who marvel at the completeness of its knowledge of the business it handles. The net expenditures of the Treasury Department in group I averaged \$29,680,-620 during 1910-16, and were \$33,383,-592 in 1917, \$40,186,382 in 1918, \$56,301,012 in 1919, and \$75,653,377 in 1920. The business of the Treasury was greatly increased by the war, although the above figures do not include the special expenses of selling liberty bonds.

Only a part of the work of the Interior Department is included in group I. The Land Office and Land Service had an income of more than half their expenses, the net expense above receipts averaging \$1,899,153. The Patent Office expended on the average \$1,465,657 per year and earned \$2,135,-202, its total earnings in ten years above expenses being \$6,695,450. An effort is being made to secure for the Patent Office higher salaries and a larger staff in order to improve its service. The public pays in fees more than the total cost, and it is very important that the service be competent and satisfactory. The average net expenses of the Indian Service for the ten years was \$9,893,738 per year. This includes the expenses of the Indian agencies, the support of Indians, the support of Indian schools, and fulfilling treaty stipulations with the Indians. It does not include the trust funds handled for the Indians or the interest on these trust funds, which funds now amount to over thirty million dollars.

The Post Office Department, as already explained, was very nearly self-supporting during this ten-year period, the net deficiency amounting to only \$485,717 on the average, less than a quarter of one per cent of the business

done. All government mail service is carried free, and newspapers within the county where published (but outside of city free delivery areas) are carried free. There has been little increase of postage rates, except the extra cent on first class matter during the war, and that was all turned over to the Treasury as war revenue.⁴ This gratifying result, however, probably can not be continued. In 1920 there was a deficit of \$38,000,000 caused by increase of compensation to employes and the railroads. The railroads and other public utilities have found it necessary to increase rates, in some cases nearly 100 per cent, and it should not be surprising if the Post Office found it necessary to make further increases in rates.

In the Agricultural Department, the meat inspection service, the enforcement of grain standards, pure food laws, animal quarantine acts, the acquisition of lands to protect water sheds, together with administrative and governmental work, cost on an average \$9,149,616 per year. These are governmental functions of a very fundamental character, mostly in the interest of the public health, and could not well be curtailed. The scientific work of the department is included in group II.

In the Department of Commerce, the general administration of the department, the Bureau of Navigation, the Steamboat Inspection Service, the Bureau of Lighthouses, and the Bureau of Foreign and Domestic Commerce, all together cost on an average \$6,852,318 per year above earnings from the ten-year period. The Bureau of Navi-

gation has charge of the commercial marine, the issue of registers, enrollments and licensing of vessels, the enforcement of the navigation laws and laws governing radio communication and other matters connected with shipping. The Steamboat Inspection Service inspects vessels and their boilers and equipment, and licenses marine engineers and others. The duties devolving on these inspection services have greatly increased and the department feels the need for more ample funds for the work.

The Bureau of Lighthouses is charged with the establishment and maintenance of aids to navigation on the sea and lake coasts (and some rivers) of the United States, such as lighthouses and lightships, buoys and lights, and publishes information for mariners. The importance of such aids to navigation and the small number of lives lost per annum upon ships in our waters constitute, it is believed, a full justification for the work and expense of this Service.

The Bureau of Foreign and Domestic Commerce is concerned with the development of commerce and our export trade. The importance of foreign trade to a great nation, and the opportunity and duty of the government in fostering that trade in all legitimate ways, need not be emphasized. In view of the position of America as a world power, and in view of the general desire that our foreign commerce may be not only profitably but creditably conducted, it would seem that this function of the government should be developed and strengthened.

The Immigration and Naturalization service was more than self-supporting during the five fiscal years, 1910-14, by reason of the fees collected from immigrants. During the five war years, 1915-19, immigration fell off very greatly, however, and the receipts

⁴ The postal rates for second class matter were increased at the beginning of the fiscal year 1919. The revenues were thereby increased for this last year of the ten-year period about \$4,800,000 which is a little more than one per cent of the postal revenues for the year. In 1920, the corresponding increase was about \$12,035,000, nearly three per cent of the total postal revenues.

decreased correspondingly. The average net cost of these services for the ten-year period amounted to \$465,244 per year, which was only about 13 per cent of the total cost. A considerable amount of useful educational work is being done in the Bureau of Naturalization, in preparing for citizenship those who are being naturalized, and it would be of immense value to the country if this work could be greatly strengthened.

The Department of Justice is the law department of the government. It has charge of the government's interests in cases in the federal courts, and furnishes solicitors to all the other departments. It exercises general superintendence and direction over United States attorneys and marshals in all judicial districts throughout the country. Its activities have been greatly increased by the war, and its net expenses have increased from an average of less than \$1,500,000 during the years 1910-17 to \$2,321,566 in 1918, \$3,180,150 in 1919, and \$4,496,082 in 1920.

Under judicial are included the federal courts and penal establishments throughout the country, the average net expenses of which were \$7,625,586 per year during the ten-year period 1910-19, increasing very little during this period, and \$10,789,974, in 1920. This total includes the salaries of the judges of the Supreme Court, circuit and district courts, courts of custom and claims; salaries and expenses of United States marshals, district attorneys and assistant attorneys; clerks and bailiff of courts; fees of commissioners, jurors and witnesses; and the support of prisoners and expenses of federal penitentiaries at Atlanta and Leavenworth.

The Interstate Commerce Commission has jurisdiction over the railroads of the country. During the first five years of the ten-year period,

its expenditures averaged \$1,499,420 per year; during the last five years they averaged about \$5,003,363 per year. The difference was largely owing to the valuation of the railways in the latter period. In 1920, net expenses were \$5,750,470. No one doubts the necessity for the work of this Commission, and it certainly should be done thoroughly and by competent engineers, economists and railway experts. The Commission has built up a very fine organization, pays much better salaries than most branches of the government services employing engineers and other technically trained men, and is giving a useful demonstration of the advantages to the government service of a suitable salary scale and adequate funds to pay salaries and expenses.

The Federal Trade Commission (like the Interstate Commerce Commission) is independent of all executive departments. It was created in 1914, and replaced the Bureau of Corporations of the Department of Commerce. It investigates the organization and management of corporations with respect to possible violation of antitrust laws, through price discrimination, unfair methods of competition or otherwise; it also investigates trade conditions in foreign countries with respect to combinations affecting the foreign trade of the United States. The Bureau of Corporations expended \$216,272 per year for the first six years, 1910-15; the Federal Trade Commission expended an average of \$782,389 for the four years, 1916-19, increasing from \$369,950 in 1916 to \$1,552,244 in 1919, and being \$1,019,446 in 1920. These appear to be very moderate sums, if not indeed very inadequate sums, for such important work.

A part of the expenses of the District of Columbia, that is, the city of Washington, the Capitol of the Nation, is

included in group I. The maintenance and operation of the Panama Canal, and of all the federal buildings in the United States (except the War and Navy buildings) are included in this group. Extraordinary expenses (item 49) covers expenses incident to bringing home Americans at the outbreak of the war, war risk insurance on ships in 1915 and 1916, and the amount expended for the centennial celebration of Perry's victory on Lake Erie.

All the functions performed under the 49 headings of group I, legislative, executive and judicial, very imperfectly sketched in the preceding pages, cost the people during this ten-year period *an average of \$1.07 per year per capita of the population of the country*. In comparison with the cost of state and city government it is surprisingly small. In 1920, however, for reasons which we shall see later, the cost was nearly double this average, and it is not unlikely to become still larger.

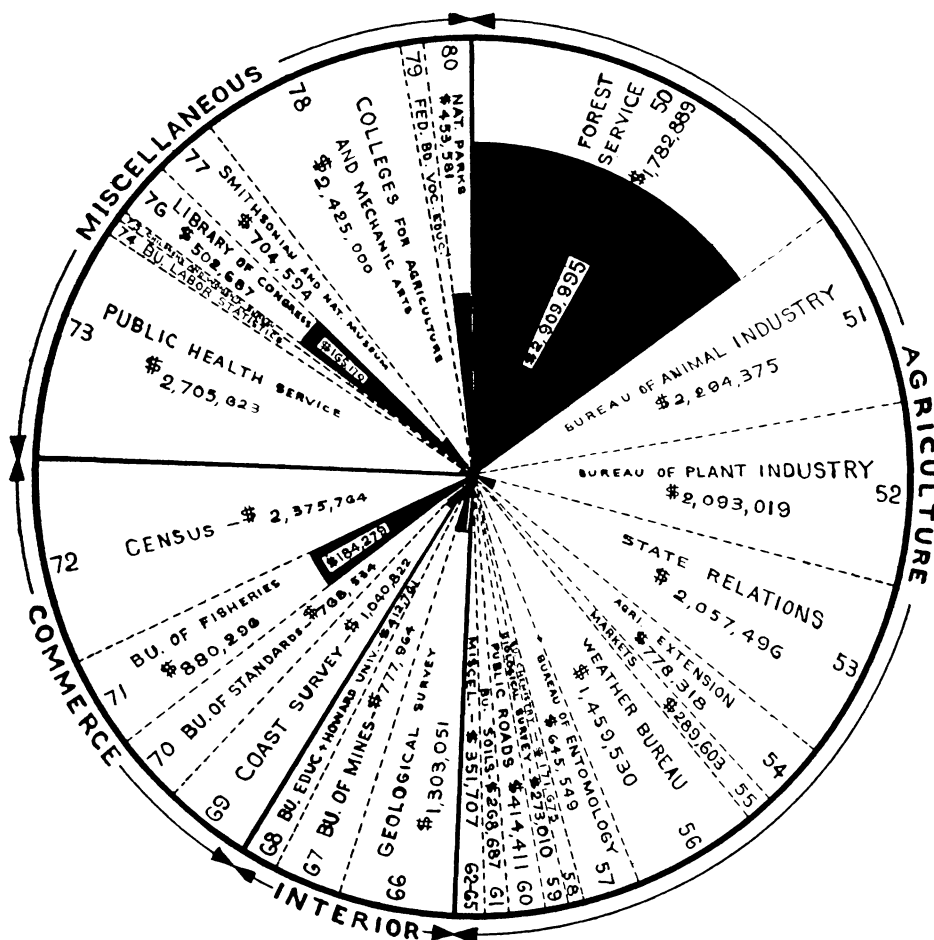
Group II: Research, Education and Development

The United States Government is carrying on a very considerable amount of scientific and engineering work through a large number of bureaus located in several different departments. The Agricultural Department is sometimes spoken of as the greatest scientific institution in the world. The Geological Survey, the Bureau of Mines, the Bureau of Standards and other bureaus are well and favorably known for their scientific and engineering work. The importance and economic value of such work is appreciated only by engineers and others who have been brought into intimate contact with such work. Our industries and our civilization are largely based on science and its manifold applications, realized in practice through the various branches of engineering. That

the government should foster science and engineering and coöperate with and develop the industries by means of scientific and engineering research is very generally admitted. The extent to which it should go, however, will of course depend upon the returns secured for such work, and whether it appears profitable and helpful and on the whole necessary. Figure 7 shows the average annual expenses and earnings (in black) of the various bureaus and other agencies included in group II.

The fifteen bureaus of the Agricultural Department constitute the first half of group II. This work is of fundamental importance not only to farmers and agricultural communities but to the entire population. An abundant supply of food is essential to the welfare and even existence of the nation, and as the urban population increases more rapidly than the rural, the food problem becomes more serious.

Agriculture is the most important industry of the nation. Agricultural and animal products amounted possibly to twenty-five billion dollars last year. Food has risen in price in recent years along with other products, partly because of higher wages and higher cost of machinery and supplies used by farmers, but largely because the urban population has increased faster than the rural and the demand for food products has increased faster than the supply. It is of prime importance to city dwellers that food products be produced in greater quantity, and this requires an increased efficiency or an increased rural population, or both. The Agricultural Department carries on a wide range of educational and experimental work in order to increase the production of farm products and to promote the interest of the farmer in his work, as well as to make life on the farm and in rural communities more attractive. This not only bene-



GROUP II - RESEARCH, EDUCATION AND DEVELOPMENT
AVERAGE ANNUAL EXPENDITURES AND EARNINGS 1910-1919



TOTAL AREA OF SECTOR REPRESENTS GROSS DISBURSEMENT
 SHADED AREA REPRESENTS RECEIPTS
 UNSHADED AREA REPRESENTS NET EXPENDITURE

FIGURE 7

Fig. 7 shows the average gross disbursements, earnings, and net expenses for the activities included in group II for the ten-year period. The total area of each sector represents the gross disbursement, the black area represents earnings or receipts, while the white area represents net expenditure. The numbers assigned to each sector refer to the numbers given the corresponding sub-groups in the classification followed.

fits the farmer but tends to keep food prices within reason for city dwellers. It is therefore serving all the people, and its work was never so much needed as at the present time. It is spending in this work not over \$1.00 for every \$1,000 of value of agricultural and animal products, and without doubt the results achieved pay many times the cost. The work of the Forest Service, which is nearly self-supporting, is akin to that of the Public Works, and is described in connection with group III. The research work in agriculture is of great importance and absorbing interest.

The Geological Survey is one of the oldest of our scientific bureaus and has done notable work of the greatest scientific and economic value. It includes, besides structural and economic geology, topographic surveys and studies of water supply and water power. The Bureau of Mines is an outgrowth of the Geological Survey, and is concerned with all the problems of mining and quarrying and the handling and treatment of their products, and also many phases of the petroleum and natural-gas industry, and the use of fuels. These materials are fundamental to the industries, and work which helps the production of fuels and such important raw materials as metals and minerals is of prime importance.

These two bureaus are concerned with the mineral industries of the country: coal, iron, copper and the other industrial and precious metals, oil, gas and the water supply and the topography of the land. Our country is rich in these natural resources but we are spending them in prodigal fashion. It is the business of these two bureaus to survey and map the distribution of metals and minerals; to look for new sources of supply; to gather statistics and to increase safety and efficiency in the mining and metallurgi-

cal industries; and to consider what can be done to conserve these natural resources which, unlike the products of agriculture, are not reproduced in annual cycles, but when once used can never be replaced. The products of the mineral industries of the country amount possibly to six billions of dollars per year. They are indispensable to our manufacturers, and a most important part of our national wealth. If these two bureaus were to spend in this important work of research and development, an amount equal to one dollar in a thousand of the annual value of mineral products, it would amount possibly to six million dollars per year, which is more than double present expenditures.

Can there be any doubt that such a sum expended in the interest of the public that pays the entire cost, and must bear the burdens of any inefficiency that exists in the industries, would be amply repaid? For example, millions of dollars are worse than wasted every year in accidents that could be prevented. Mining is one of the most hazardous of industries. The Bureau of Mines has done a great deal of valuable work, both in research and education, to make mining safer; but there is need for a great deal more than it has been able to do. The results of such work are available in all the states where mining is carried on. It can generally be done better, and far more economically, than if done by the states unaided by the Federal Government. These two bureaus are doing a work of great economic importance at a cost to the people of this country of three cents per capita per year. If it were doubled, the burden would be only slightly increased, but the service rendered in the increased efficiency of production and fewer accidents and more intelligent use of our natural resources would be very considerable.

TABLE 4
AVERAGE ANNUAL NET EXPENDITURES—ALL CIVIL ACTIVITIES
FISCAL YEARS 1910-1919

	Net Amount	Per Cent of Total Civil
GROUP I—Primary Governmental Functions		
Legislative	\$14,117,445	6.7%
Executive	727,843	0.3
State	3,387,802	1.6
Treasury	33,763,532	16.0
Interior	13,193,388	6.3
Post Office	485,717	0.2
Agriculture	9,149,616	4.4
Commerce	6,852,318	3.2
Labor	465,244	0.2
Justice	1,686,598	0.8
Judicial	7,625,586	3.6
I. C. C.	3,251,391	1.5
District of Columbia	3,917,128	1.9
Public Buildings—Maintenance	5,511,753	2.6
Miscellaneous	1,620,163	0.8
Total—Group I	\$105,755,525	50.1%
GROUP II—Research, Education, Development		
Agriculture	\$12,880,271	6.1%
Interior	2,493,777	1.2
Commerce	5,065,416	2.4
Public Health	2,705,623	1.3
Education, Welfare, etc.	4,693,226	2.2
Total—Group II	\$27,838,313	13.2%
GROUP III—Public Works		
Rivers and Harbors Improvement	\$35,324,757	16.7%
Panama Canal Construction	21,444,123	10.1
Public Buildings—New Construction	13,519,749	6.4
Reclamation Service	3,849,610	1.8
Alaska R.R.	3,108,163	1.5
Post Roads	497,049	0.2
Total—Group III	\$77,743,451	36.7%

This is a splendid example of the economic and social value of coöperation of all the people through the agency of the Federal Government in doing efficiently what is needed by all.

The Bureau of Education has done important and useful work, but has

never been developed on a scale commensurate with the importance of its field. It is believed by many that the Bureau of Education should take a leading part in studying the science of education, and coöperate effectively with the educational institutions of the

country in setting standards of education. It would not and could not dominate or control education, and there would be no danger of such a result. But it should be able to coöperate effectively and worthily, and to assist in raising educational standards where they are too low. The Federal Government is now assisting the states to the extent of a hundred million dollars a year in the building of highways. Why should it not assist in the supremely important work of education by taking a leading part in studying the problems of education?

Four bureaus of the Department of Commerce are included in group II. The Coast and Geodetic Survey is one of the oldest branches of the government doing scientific and technical work, and until the establishment of the Bureau of Standards, kept the standards and did the testing of weights and measures. It is charged with the survey of the coasts and rivers to the head of ship navigation, and the publication of charts, giving the results of base measurements, triangulation, topographic and hydrographic surveys, deep sea soundings and temperature, magnetic observations, gravity research, determination of heights, latitude, longitude, and reference points for state surveys. This work, which is very fundamental and important, and upon which all other surveys are based, has been done with a high order of precision and thoroughness, and with marked credit to the government.

The object of the Bureau of Fisheries is to develop the production and consumption of fish as an important source of food. To stimulate production, scientific research on the habits and propagation of fish is carried on. The breeding of fish and their distribution into lakes and streams is done on a large scale. In all of this work, but particularly in connection with the

propagation of fish and the protection of fish against extermination, the bureau coöperates with the various states. The responsibility of the government for work of this kind is obvious, and there can be no doubt as to its being profitable.

The Bureau of Standards maintains the fundamental standards of physical measurement. It coöperates with foreign governmental institutions in maintaining international uniformity in such measurements. It provides or calibrates copies of standards for states and manufacturers so as to insure uniformity in physical measurements. It develops instruments and methods to secure the highest possible accuracy in measurements and the greatest permanence and reliability in standards. It coöperates with engineering and trade organizations in standardization work, and carries out investigations on the properties of materials to secure data for such standardization. A very large amount of work is done for the Army and Navy and other branches of the Federal Government, for state commissions and officers of state and municipal governments, and the general public. It also carries out a large amount of scientific and industrial research to develop the industries of the country. Excluding food products, tobacco and liquors, the annual value of manufactured products in this country, over and above the value of the raw materials entering into them is possibly \$12,000,000,000. The Bureau of Standards spends this year a sum not more than ten cents per \$1,000 of manufactured products in all its work, and scarcely more than one-half of it is for the purpose of developing these manufactures. If this sum could be considerably increased, it would enable a much larger amount of work to be done and the work could be carried on more efficiently. If it were

multiplied by ten, it would be none too much, and would enable the government to do for the manufacturing industries something like what it is doing for agriculture. In view of the enormous importance of developing the manufacturing industries of the country, and also in view of the large amount of money collected from these industries in taxes, it seems reasonable to expect the government to allot a more generous sum to this work. One cent per year per capita of the country's population for this constructive and wealth-producing work is a very small amount for so important a work.

The Bureau of the Census does a large amount of statistical work in addition to taking the decennial census of the population, agriculture, manufactures, mines and quarries. It is charged with collecting statistics at specified intervals regarding dependent, defective and delinquent classes, wealth, taxation, state and municipal revenues and expenditures, and many other subjects. This work is of great importance and is properly included in the research and educational group.

The Bureau of Labor Statistics gathers the statistics of wages in the various industries and the cost of living, and publishes much valuable material of interest to labor and capital. The prosperity and happiness of all the people depend to a considerable extent upon industrial peace, and freedom from strikes and disorder. Industrial peace and contentment require justice and fair dealing between employers and employed. In order that both may know what is just and fair, statistical information as to wages and changes in prices and the cost of living is essential. It is probable that the greatest obstacle to a good understanding between employers and employed is lack of information. Sus-

picion and prejudice often give way to sympathy and understanding when full information, including information about what others are doing, is made available. The good results achieved by generous treatment of labor should be put before all employers, and if the government would spend more on research and education in this important field, might it not save much that is now spent in other directions? And might not the public be saved much both in expense and inconvenience that results from industrial warfare? This subject is of such tremendous and far-reaching importance that one is led to ask whether the government is doing as much as it should in this connection.

The work of the Children's Bureau and the Woman in Industry service is relatively new, but of great importance. In the interest of the state, apart from considerations of humanity, women and children should be protected in the industries; and the work of these two bureaus is therefore of fundamental importance. It seems likely that it will grow rapidly in magnitude and occupy a larger place in the public's thought.

The Library of Congress is a great national institution, corresponding to the British Museum and the *Bibliothèque Nationale*. It is properly grouped with the educational institutions of the government, and it is an institution of which all Americans are proud. It is a great library, housed in a beautiful building, useful to thousands, enjoyed by hundreds of thousands. The country approves a generous policy toward this activity of the government, devoted as it is to art and education.

The Smithsonian Institution and the National Museum are national institutions devoted to science, industry, art and natural history. The Smithsonian Institution has a private endowment,

but the greater portion of its funds comes from the government. It carries out scientific researches in the physical and natural sciences and has extremely valuable collections in its museums and art galleries. The government has not done as much in promoting art and collecting works of art as have many other governments, and it is to be hoped that much may be done in the future to compensate for past neglect in these matters.

The Public Health Service is one of the most important of the agencies doing work of research and education. It maintains supervision over incoming vessels to prevent the introduction of diseases; to prevent the spread of diseases between the states it makes inspections and coöperates with the state departments of health; statistics of diseases are collected and interpreted, and scientific research is carried out to develop methods of preventing the spread of disease.

The service has recently formulated a comprehensive health program to be carried out on a nation-wide scale by the active coöperation of federal, state, and local authorities and voluntary organizations. That these needs are urgent is shown by the fact that more than one-third of all men examined under the draft during the war were rejected for physical defects and diseases. The Surgeon General states that in large measure these defects and diseases could have been prevented had proper attention been given to them, especially in childhood. This unsatisfactory condition of the public health shows the need of greater attention on the part of the Federal Government, and more systematic coöperation between local and national agencies.

A large amount of most valuable medical, statistical, and research work is carried on by the Public Health

Service, which has been greatly developed in recent years. The opportunities presented in this work for growth and increased usefulness are almost boundless. In addition to its work in connection with the public health, a large amount of work is done in the care and rehabilitation of sick and wounded soldiers.

The foregoing brief outline of the activities of the various government agencies included in group II gives a very incomplete statement of the research and educational work done by the government. It is, however, intended to convey some idea of the wide range and important character of this work, and its great possibilities for development if more adequate provision could be made for its support.

The Great War was based very largely on science and engineering. During the twenty-five years preceding the outbreak of the war the enemy had developed science and the practical applications of science in a wonderful way. He had fostered the industries, developed shipping and foreign trade, and promoted scientific research and education until the German nation stood in the forefront of the nations of the earth. When the war began the Allied nations were unprepared, not only for lack of armies and munitions, but for lack of industrial equipment, transportation facilities and scientific development. Holding the enemy at bay under fearful odds while they built up their armies and their industries, the Allied and associated powers utilized all the resources of science and engineering and a vast amount of accumulated treasure to make good their initial deficiencies and gain strength enough to wear out and overcome the enemy.

In this titanic struggle, scientists, engineers and captains of industry were mobilized by the tens of thousands, and men and women in the in-

dustries by the tens of millions, in order that the soldiers and sailors in the armies and the fleets might be adequately supplied with food, munitions and equipment. The wonderful achievements of science under the pressure of necessity demonstrated the economic possibilities of scientific research. This demonstration was not altogether new, but the war brought it home more forcefully, and at its close one felt that never again would anybody question the importance and economic value of scientific investigation.

Almost before the war is over, however, and indeed before peace with the enemy is officially declared, we find some of the government's scientific work seriously handicapped for lack of funds, and a feeling by many people that under present circumstances such work must be severely curtailed for the sake of economy. It, therefore, seems timely to take this survey of the fields of the government's activities, which are included in group II, and to see how much (or how little relatively!) is expended for this work.

The average cost of all this work for the ten-year period, 1910-19 as shown in table 5, was *28 cents per year per capita of the country's population*, certainly a very small sum in proportion to the importance of the interests represented, and also in proportion to the aggregate of the federal taxes collected.

Group III: Public Works, New Construction

The Panama Canal was opened to navigation in 1914. Its total cost for construction and equipment to date is \$367,000,000. During the past six years its revenues have amounted to about \$34,000,000 and its expenditures for operation and maintenance to \$36,000,000, a net deficit of \$2,000,000 for the entire period. Had it not been

for the slides in 1916, which closed the canal for seven months and greatly reduced the revenue that year, there would have been a surplus of \$2,000,000 for the entire period instead of a deficit. The surplus in the fiscal year 1920, amounted to more than \$2,000,000, and this should increase year by year. More than \$210,000,000 out of the total cost of \$367,000,000 was provided out of current revenues of the government from 1910 to 1915, and hence was included in the \$2.14 per capita of civil governmental cost during these years. This is one of the engineering triumphs of the present century, and is another illustration of the successful handling of large public undertakings by the people coöperatively, that is, by the government.

Another large undertaking of an engineering character is the river and harbor improvements, carried out by the engineers of the army but charged in this study to Public Works. During the ten years, 1910 to 1919, inclusive, more than \$350,000,000 was expended in this very important work. From Hell Gate to the Golden Gate, and from Duluth to the delta of the Mississippi, this work has been carried on for many years and is of great aggregate importance.

A third important item in this group is the construction of new public buildings, and during the ten-year period in question \$135,197,494 was expended in the construction of post offices, custom houses, hospitals and other government buildings, about one hundred twenty new buildings per year being erected. The work is done by the office of the supervising architect of the Treasury Department, which for many years has handled this work. This also comes within the total of \$2.14 per capita of civil governmental cost, about 79 cents of which was expended in the public-works group.

TABLE 5
NET CIVIL EXPENSES OF U. S. GOVERNMENT
FISCAL YEARS 1910-1919

Fiscal Year Ending June 30	GROUP I Primary Governmental Functions		GROUP II Research Education Development		GROUP III Public Works		TOTAL CIVIL I, II, and III	
	Total	Per Capita	Total	Per Capita	Total	Per Capita	Total	Per Capita
1910.....	\$102,227,955	\$1.11	\$25,394,032	\$0.28	\$79,503,701	\$0.86	\$207,125,688	\$2.24
1911.....	83,682,691	0.89	27,395,497	0.29	85,562,800	0.91	196,640,988	2.10
1912.....	92,376,833	0.97	22,249,438	0.23	87,885,582	0.92	202,511,853	2.13
1913.....	92,858,188	0.96	21,611,973	0.22	95,568,921	0.99	210,039,082	2.18
1914.....	91,313,408	0.93	22,874,599	0.23	95,974,381	0.98	210,162,388	2.15
1915.....	106,826,332	1.08	30,060,474	0.30	94,401,736	0.95	231,288,542	2.33
1916.....	114,742,625	1.14	27,719,284	0.28	58,965,247	0.59	201,427,156	2.00
1917.....	108,676,368	1.06	28,424,546	0.28	62,759,736	0.61	199,860,650	1.96
1918.....	125,204,304	1.21	34,773,718	0.34	62,480,263	0.60	222,458,285	2.15
1919.....	139,646,546	1.33	37,879,567	0.36	54,332,139	0.52	231,858,252	2.21
Aggregate Cost.....	\$1,057,555,251	\$10.72	\$278,383,127	\$2.82	\$777,434,506	\$7.88	\$2,113,372,884	\$21.43
Average.....	105,755,525	1.07	27,838,313	0.28	77,743,451	0.79	211,337,288	2.14

In addition to the construction of new buildings the supervising architect's office has charge of the operation and maintenance of 1300 public buildings in all parts of the country.

The fourth item in this group is the construction of rural post roads, by coöperation with state highway departments. This work has been greatly expanded recently. During the ten years, 1910 to 1919, inclusive, \$4,970,489 was expended in the aggregate. But the appropriation for 1920 was \$99,000,000, and for 1921, \$104,000,000. This is more than the annual expenditure previous to 1920 for the entire range of engineering work included in group III. The importance of good roads to the proper development of the country is now well understood, and there can be no doubt that the coöperation of the Federal Government will be to the advantage of the people as a whole. The building of roads is an engineering matter in which technical information and experience are of very great importance. The aid of the Federal Government not only stimulates and aids the states, which must pay at least half the cost, but tends to secure the best engineering service and to standardize road construction. It can not fail to have a great educational influence upon engineers and road builders throughout the country, and to give the users of roads better roads and the taxpayers more for their money than if it is left to individual states.

Moreover, in planning and building national highways it is very advantageous to have the Federal Government an active participant, in order to secure a better coördination of effort. As a measure of military precaution and preparedness the realization of a system of good roads on a national scale is of enormous advantage. As a help in getting food to market and supplies to farmers, it is of enormous economic

value. As supplementing and in some cases supplanting railroads, such a system of highways is of great significance.

The fifth item is the Alaskan Railway, from Seward to Fairbanks. During the years 1913 to 1919, inclusive, \$31,081,628 was expended on this important railway, which, when completed, will be 540 miles long. As with the Panama Canal, this is not an undertaking which private capital would care to undertake. But its ultimate success and its value in the development of Alaska can hardly be doubted.

The sixth item is the Reclamation Service, one of the most profitable and most interesting of the engineering projects of the government. To reclaim the deserts and to create farms and homes and villages where before was waste and desolation is an inspiring undertaking; and to be able to create wealth far in excess of the cost of the work furnishes a double incentive. Since 1902 the Reclamation Service has constructed irrigation systems to supply 1,780,000 acres of land with water, and storage reservoirs sufficient to supply an additional million of acres. On this reclaimed land 40,000 families are living, and the population of the towns and villages within these projects had increased by as many more. It is estimated that the increased value of the land due to the work of the Reclamation Service is \$200 per acre, or a total of more than \$350,000,000. The annual value of the crops raised on these lands is estimated at \$90,000,000. Most of the money expended on this work is derived from the sale of public lands and the money collected from settlers for the improvements made and the water service rendered.

The Forest Service is akin to the Reclamation Service in that it is

TABLE 6
NET EXPENDITURES—GROUP I—PRIMARY GOVERNMENTAL FUNCTIONS
FISCAL YEARS 1910-1919

Year Ending June 30	Legislative	Executive	State	Treasury	Interior
1910	\$13,812,900	\$520,208	\$2,283,201	\$29,880,569	\$16,606,130
1911	13,172,117	734,459	2,656,010	27,336,313	9,035,520
1912	12,308,400	923,979	2,506,497	28,699,035	11,880,330
1913	14,054,658	591,646	2,076,326	29,064,241	11,123,752
1914	13,242,248	463,992	2,662,757	30,332,558	12,753,558
1915	14,352,302	568,219	2,684,166	31,667,486	13,139,302
1916	13,533,403	564,847	3,433,545	30,784,137	12,402,249
1917	14,395,362	675,311	3,648,075	33,383,592	13,289,624
1918	15,817,749	910,919	4,877,254	40,186,382	15,968,165
1919	16,485,312	1,224,852	7,250,190	56,301,012	15,735,253
Average, 1910-1919	\$14,117,445	\$727,843	\$3,387,802	\$33,763,532	\$13,193,388
	Post Office	Agriculture	Commerce	Labor	Justice
1910	\$10,117,907	\$5,083,026	\$6,862,150	—\$1,190,581*	\$1,010,038
1911	1,812,594	4,497,688	5,978,456	—768,822*	1,272,444
1912	3,461,232	7,878,024	5,822,178	—100,398*	1,386,947
1913	3,196,710	8,678,942	6,416,086	—2,043,487*	1,518,361
1914	—1,563,798*	9,153,014	6,249,043	—2,109,283*	1,586,215
1915	5,031,466	9,857,383	6,771,915	1,587,645	1,536,760
1916	7,270,710	10,735,784	6,877,075	1,884,896	1,508,102
1917	—3,279,332*	11,371,938	7,228,009	2,066,226	1,545,397
1918	—5,402,286*	11,789,604	7,504,245	2,834,796	2,321,566
1919	—15,788,032*	12,450,760	8,814,021	2,491,447	3,180,150
Average, 1910-1919	\$485,717	\$9,149,616	\$6,852,318	\$465,244	\$1,686,598
	Judicial	I. C. C.	District of Columbia	Public Buildings Maintenance	Miscellaneous
1910	\$7,596,825	\$1,152,344	\$4,151,543	\$4,129,320	\$212,375
1911	7,087,143	1,315,920	4,656,414	4,707,852	188,583
1912	6,713,079	1,383,881	4,315,075	4,976,757	221,818
1913	7,515,440	1,639,654	3,723,599	4,918,699	383,561
1914	7,243,033	2,005,303	3,753,681	4,975,798	465,290
1915	7,785,778	3,781,380	3,430,189	5,548,826	—916,485*
1916	7,931,343	5,006,593	3,457,112	5,863,026	3,489,803
1917	7,890,437	5,166,003	3,632,769	6,049,376	1,613,582
1918	7,969,996	5,389,981	3,445,583	6,671,633	5,118,718
1919	8,522,787	5,672,856	4,605,316	7,276,239	5,424,383
Average, 1910-1919	\$7,625,586	\$3,251,391	\$3,917,128	\$5,511,753	\$1,620,163

STATEMENT REGARDING U. S. EXPENSE FOR DISTRICT OF COLUMBIA

The Federal Government's share of expenses of the District of Columbia is always less than half of the total because the operating expenses of the water department and a certain number of minor activities are borne by the District alone. However, to the average annual net expenditure of \$3,917,128 for the District of Columbia shown in the charts and the tables, there must be added \$2,120,375 as the average annual expenditure on behalf of the District by the Federal Government which has been charged by the Treasury to the War Department, the Department of the Interior, and certain bureaus of other departments. This makes a total net expenditure for the District of \$6,037,503 per year average for the ten-year period, as against an average of \$9,500,243 paid by the District, or 39 per cent of the total.

* Surplus.

developing the public domain. It has been included in group II, but may be mentioned in this connection. The national forests are located in 29 states in all parts of the country, although the larger portion is in the Far West. There are 152 different forest tracts, with a total area of 156,000,000 acres. The Forest Service has the responsibility of protecting and managing these vast tracts of land; studying how to

Laboratory of the Forest Service has done a great deal of valuable scientific and engineering work on a wide range of subjects. In planning its work and in developing the forests the Forest Service takes a long look ahead.

Obviously, no commercial company could undertake such a work. The question of early dividends is not paramount with the government. We have drawn lavishly, even recklessly

TABLE 7
NET EXPENDITURES, GROUP II—RESEARCH, EDUCATION, DEVELOPMENT
FISCAL YEARS 1910-1919

Year Ending June 30	Agriculture	Interior	Commerce	Public Health	Education Welfare, etc.
1910	\$9,750,531	\$1,574,790	\$8,450,503	\$2,021,199	\$3,597,009
1911	11,112,882	2,036,544	8,394,968	1,927,813	3,923,291
1912	9,396,796	2,109,032	4,263,804	2,077,536	4,402,269
1913	9,282,029	2,192,227	4,222,149	1,993,879	3,921,688
1914	10,507,954	2,381,916	3,714,348	2,097,577	4,172,804
1915	16,386,062	2,484,931	4,295,765	2,519,871	4,373,845
1916	14,265,752	2,417,311	4,139,785	2,589,210	4,307,226
1917	14,425,464	2,529,453	4,014,684	2,768,880	4,686,064
1918	17,114,309	3,204,093	4,711,100	3,121,402	6,622,814
1919	16,560,926	4,007,472	4,447,053	5,938,864	6,925,252
Average	\$12,880,271	\$2,493,777	\$5,065,416	\$2,705,623	\$4,693,226

develop the land best and make its resources most useful to the public. It yields a large revenue each year from timber cut (last year 800,000,000 board feet), and affords on its grazing ranges pasturage for 15,000,000 head of sheep, cattle, horses, goats, and swine. Watching the forests for the outbreak of fire, and fighting fires when they gain headway, is one of the important duties of the Forest Service. Another duty is applying scientific forestry to the development of the forests. Still another is studying the properties of woods and methods of treating and using woods. The Forest Products

in some cases, upon our natural resources, and it is well that we should be taking some thought for the future, and should be able to hand down to the next generation our public forest areas in better, rather than worse, condition than they are at present. The annual earnings of the Forest Service go a long way usually in paying expenses, and it is believed that in a few years they will pay the entire cost of the work, in addition to adding year by year to the value of the national forests.

The Federal Power Commission is another agency recently established to

do engineering work akin to the Reclamation Service and Forest Service in that it is developing the natural resources of the country and indirectly creating wealth. It is different, however, in this important respect, that instead of carrying out engineering work itself, it has general supervision of power sites and their development and will grant permits to private agencies to carry out such work and supervise the carrying out of the work so that it shall not be inconsistent with the public interest. The power problem is a very fundamental one, and the recent unfortunate experience of

the industries and public utilities which depend upon coal emphasizes the need for the government to do what it can to make the water powers of the country available to the industries. It is to be hoped that the Federal Power Commission will be given such means to work with, that it will be enabled to attack the problems before it effectively and successfully.

All these important constructive activities of the government (except the Forest Service as shown in Fig. 8) were carried on for the ten-year period at a total cost of \$777,434,500 and an annual cost of about 79 cents per capita

TABLE 8
GROSS AND NET EXPENDITURES—GROUP III—PUBLIC WORKS
FISCAL YEARS 1910-1919

Year Ending June 30	Rivers and Harbors Im- provements	Panama Canal Con- struction	Public Buildings Construction	Reclama- tion Service	Alaska Railway	Rural Post Roads
1910.....	\$29,026,114	\$33,911,673	\$18,404,109	\$7,888,604	.....	.....
1911.....	33,640,353	37,032,907	16,287,536	7,314,300	.....	.....
1912.....	35,646,618	34,291,280	18,034,385	9,194,067	.....	.....
1913.....	42,274,840	40,684,496	14,021,781	6,646,252	\$16,625	.....
1914.....	49,921,592	31,950,041	11,277,797	7,709,351	116,801	.....
1915.....	46,833,914	23,687,437	14,632,086	12,091,686	572,786	\$265,327
1916.....	32,450,301	8,103,039	11,048,164	5,891,615	4,148,791	.....
1917.....	30,487,560	9,184,867	12,116,721	4,993,732	9,407,845	34,994
1918.....	29,593,582	6,704,127	12,206,527	5,205,480	11,535,605	843,474
1919.....	33,078,306	1,684,324	10,184,243	4,304,956	5,284,698	3,826,694
Total Gross Cost.....	\$362,953,180	\$227,234,191	\$138,213,349	\$71,240,042	\$31,083,151	\$4,970,489
Earnings and Receipts....	9,705,612	12,792,964	3,015,856	32,743,943	1,523	.....
Net Cost.....	\$353,247,568	\$214,441,227	\$135,197,493	\$38,496,099	\$31,081,628	\$4,970,489

STATEMENT REGARDING U. S. EXPENSE FOR RECLAMATION SERVICE

In the expenditures and credits of the Reclamation Service as shown in the charts and tables some items do not appear because of certain bookkeeping procedure which the law requires the Treasury to follow in this instance. Thus the total amount actually disbursed in 1910-19 is \$97,583,587. This is \$26,343,545 in excess of the amount shown in table 8, this difference representing the collections during this period from water rights charges on completed projects which by act of Congress the Reclamation Service is permitted to reinvest in new projects. In addition to a loan of \$20,000,000 advanced by the Treasury in 1910, the actual credits to the service in the ten-year period amounted to \$74,127,630. The excess of this amount over that shown in the charts and tables consists of \$14,460,-581 from Land Office fees and commissions (credited in this study to the Land Service), and \$26,923,106 from water right charges and other collections from completed projects. The entire Reclamation investment since the beginning in 1901 amounted at the end of June, 1919, to \$144,820,091. Of this sum all but the \$20,000,000 loan has been defrayed by the proceeds of the sale of public lands by the Land Office, together with fees and commissions, and the collections by the Reclamation Service from completed reclamation projects.

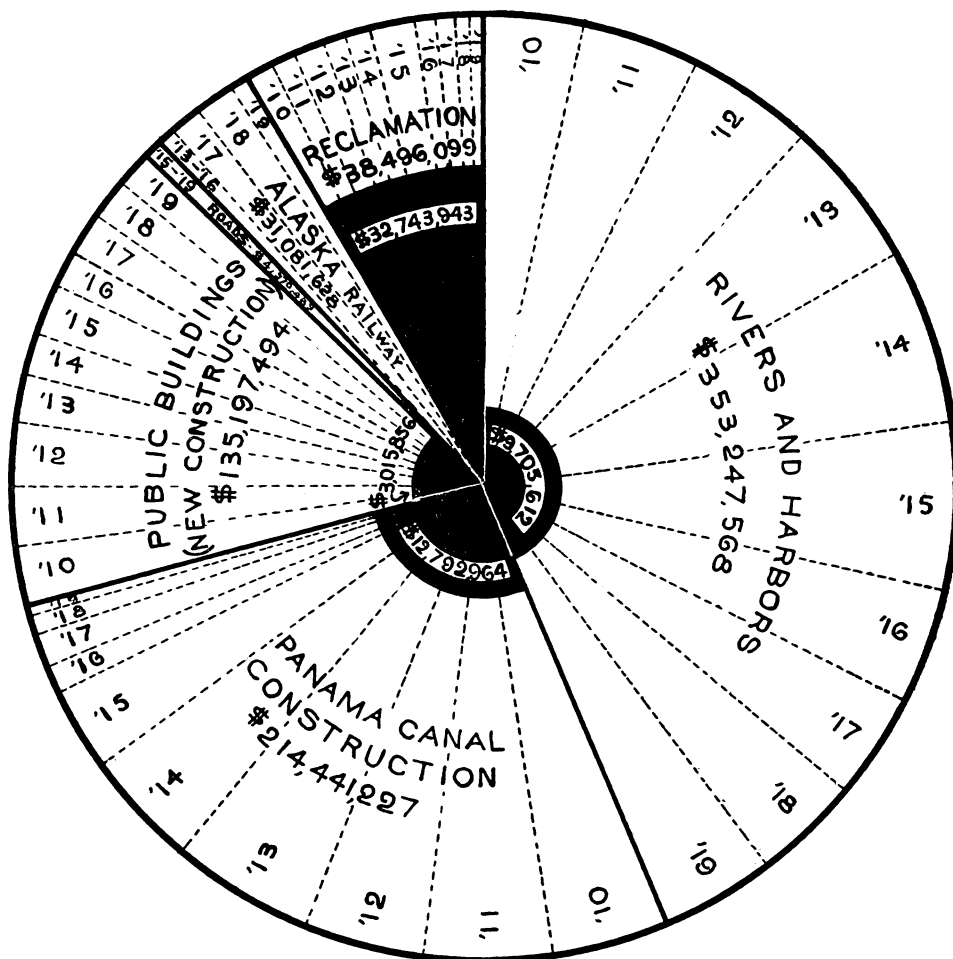


FIGURE 8

In Fig. 8 the total area of each sector represents gross disbursements, the black area represents receipts and the white area represents net expenditure.

The amounts shown in each sector represent the aggregate expenditure in the ten-year period for each item. The annual expenditures for each year are also indicated except in the case of Rural Post and Forest Roads which was too small to be subdivided.

The receipts represent the proceeds of the sale of government property, but in the case of the Reclamation Service these receipts consist almost entirely of the proceeds from the sale of public lands. Additional receipts from reclamation projects are not shown in the chart. Practically the whole cost of this work is reimbursable, being assessed against the owners of the property benefited, and payable in twenty annual installments. The annual value of the crops raised on the reclaimed land is estimated at \$90,000,000.

The cost of maintenance and operation of the Panama Canal and the tolls from its operation are included in Group I.

of the country's population. That so much could be done at so slight a burden to each is of course because it is shared by so many. And this is the principal argument in much that the Federal Government does, particularly in research and development work. To do it well once and place the results at the disposal of all is far cheaper as well as better than for separate agencies to do it separately or to try to do it together without the means for securing effective coöperation.

Groups IV, V and VI: Army and Navy, Pensions and Special War Activities

The importance and necessity of the military departments of the government need no emphasis here. That the Army and Navy should be well supported and developed up to a high degree of efficiency is generally conceded. As to how large they should be and how much they should cost, there are many opinions. No opinion is here expressed on these questions. The

TABLE 9
AVERAGE ANNUAL EXPENDITURES AND CREDITS OF WAR DEPARTMENT
FISCAL YEARS 1910-1920
For 7 Pre-war Years, 3 War Years, and 1920

	Average 1910-1916	Average 1917-1919	1920
<i>Expenditures</i>			
Salaries and Expenses.....	\$1,860,263	\$13,121,209	\$8,004,775
Quartermaster Corps.....	93,197,893	3,059,410,621	675,648,807
Medical Department.....	1,087,105	101,478,026	9,330,216
Signal Service.....	691,344	319,173,352	-16,320,858*
Ordnance Department.....	7,074,443	1,360,124,443	286,509,318
Engineer Department.....	3,583,375	209,202,649	43,304,346
Military Academy.....	1,324,180	1,580,042	1,971,370
National Guard.....	6,478,014	15,547,460	1,675,919
War Miscellaneous—Military.....	179,764	18,659,254	21,672,537
National Homes.....	5,021,028	4,983,084	6,091,466
National Cemeteries and Monuments.....	437,804	1,597,945	2,923,879
War Claims and Relief Acts.....	1,001,544	647,479	987,535
War Miscellaneous—Civil.....	1,281,573	1,372,697	2,020,520
Trust Funds.....	2,455,261	1,239,696	5,789,854
Total Expenditures.....	\$125,673,591	\$5,108,137,957	\$1,049,609,684
<i>Credits</i>			
Quartermaster Corps.....	\$296,542	\$18,729,357	\$306,674,668
Signal Service.....	187,402	296,316	309,114
Ordnance Department.....	119,837	1,878,950	5,913,490
Miscellaneous.....	116,378	1,400,934	6,250,823
Trust Funds.....	2,395,599	1,633,240	2,044,736
Total Credits.....	\$3,115,758	\$23,938,797	\$321,192,831
Total Net Expenditures.....	\$122,557,833	\$5,084,199,160	\$728,416,853

* Surplus.

purpose of this paper is to present facts fairly and in such a way as to facilitate study and discussion, and to urge the importance of proper support for all the activities of our national government, in order that they may be adequate, efficient and creditable.

Table 9 gives the expenditures of the War Department of the eleven-year period, 1910-20, itemized by departments substantially as in the report of the Treasury. Table 10 gives similar data for the Navy Department.

Group V covers pensions and care of soldiers. It includes in item 91 pen-

sions and the cost of operating the Pension Office; in item 92 the insurance of soldiers and sailors during the recent war and subsequently, through the Bureau of War Risk Insurance; in item 93 the rehabilitation of soldiers by the Federal Board of Vocational Rehabilitation; and in item 94 the care of soldiers and sailors by the Public Health Service.

Group VI, covering obligations arising from the war, occurs only in the years 1917 and following. Item 95 is the Railroad Administration, and the expenditures under this head were for

TABLE 10
AVERAGE ANNUAL EXPENDITURES AND CREDITS OF NAVY DEPARTMENT
FISCAL YEARS 1910-1920
For 7 Pre-war Years, 3 War Years, and 1920

	Average 1910-1916	Average 1917-1919	1920
<i>Expenditures</i>			
Salaries and Expenses	\$838,470	\$4,196,547	\$2,797,152
Pay, etc. of Navy	38,318,099	150,708,649	189,566,231
Increase of Navy (including Aviation)	31,321,519	334,105,656	282,287,769
Bureau of Yards and Docks	6,717,012	54,048,514	46,134,106
Bureau of Navigation	3,748,152	15,135,100	18,728,060
Naval Academy	632,910	2,527,158	2,275,826
Bureau of Construction and Repair	8,603,583	46,078,734	16,558,456
Bureau of Ordnance	12,252,712	143,960,024	81,743,883
Bureau of Steam Engineering	9,575,799	38,648,068	24,811,485
Bureau of Supplies and Accounts	13,426,889	109,618,667	43,640,360
Bureau of Medicine and Surgery	1,079,680	8,074,474	9,981,760
Marine Corps	7,373,914	44,051,947	42,157,757
Miscellaneous	1,980,678	255,261,491	-135,049,634*
Trust Funds	463,847	9,475,392	7,057,057
Total Expenditures (annual average)	\$136,333,264	\$1,215,890,421	\$632,690,268
<i>Credits</i>			
Sale of Property	\$2,125,142	\$611,825	\$15,430,646
Navy Fines	610,063	643,950	635,301
Naval Hospital	448,508	224,802	301,364
Navy Miscellaneous	272,362	738,959	1,602,128
Trust Funds	487,936	293,201	142,199
Total Credits	\$3,944,511	\$2,512,737	\$18,111,638
Total Net Expenditures (annual average)	\$132,388,753	\$1,213,377,684	\$614,578,630

* Surplus.

advances to the railroads and compensation for deficits of net earnings below the guaranteed return during the period of federal operation and the six months guarantee period thereafter.

Item 96 is the Shipping Board which has constructed a fleet of ships and is now operating many of them. Item 97 is the Food and Fuel Administration, beginning in 1918. Item 98 includes the Bureau of Industrial Housing and Transportation, the Council of National Defense, the Interdepartmental Social Hygiene Board and the National Advisory Committee on Aeronautics. Item 99, special activities, includes the special funds placed in the hands of the President, under the heading National Security and Defense, and disbursed by various civil and military agencies, and also the special cost of handling liberty loan campaigns and other special war activities, and the purchase of the Danish West Indies. Of the five and a quarter billions of dollars disbursed in the four years 1917 to 1920, in the activities of group VI, \$3,217,239,000 of it was expended by the Shipping Board, and a part of this is represented by the value of the ships now owned by the board. The Railroad Administration has had \$1,534,975,000 as advances and payments to cover guaranteed net earnings for the railroads. Items 97, 98 and 99, including the Food and Fuel Administration and all the war boards and special war activities represent less than ten per cent of the total for the four years, namely \$498,245,958, of which nearly \$100,000,000 was for European food relief in 1920.

Groups VII, VIII and IX: Interest, Public Debt, Loans and Trust Funds, and Revenues

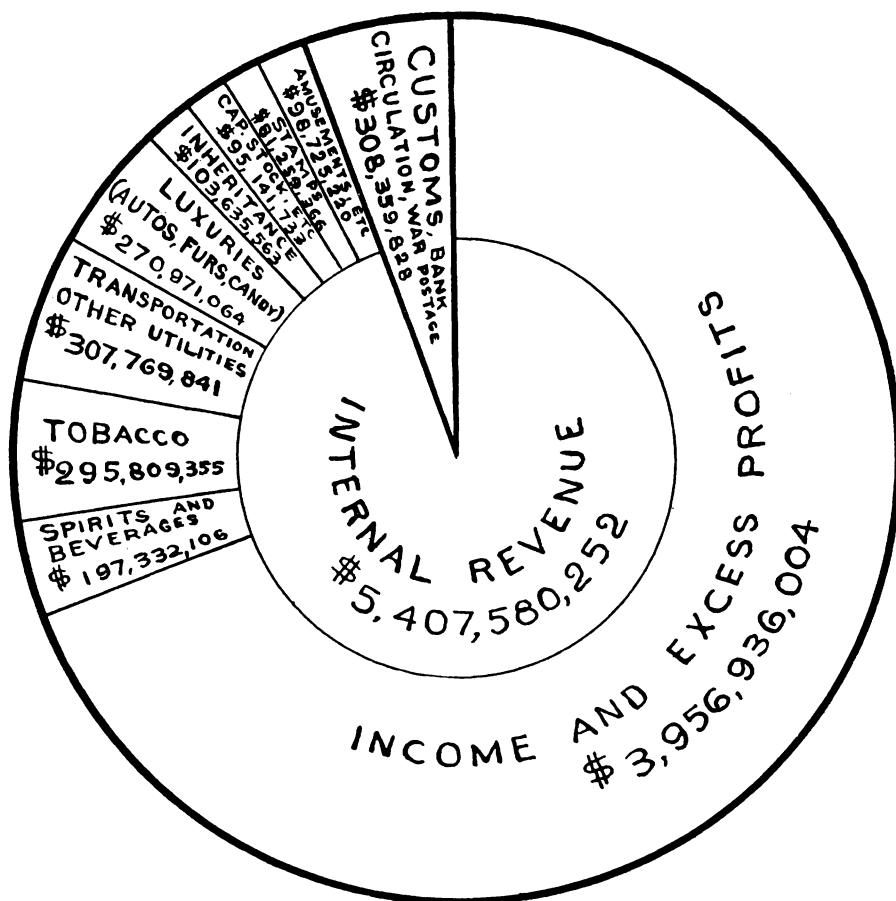
These groups represent fiscal operations and revenues, all handled by the

Treasury. The first group includes interest, which is an item of current expense. Item 100 gives interest on the public debt, and item 101 includes all other interest transactions, such as interest paid on trust funds (Indian moneys and other funds held by the government in trust and drawing interest) and interest received on loans. The latter includes loans to farmers, banks, railroads, and European governments.

Group VIII includes transactions (not including interest) as to public debt, loans and trust funds. Seigniorage is included here also, as it is virtually a loan (without interest) when it is credited, and the liquidation of that loan when it is debited. There are some exceptions, but this would be the rule and it seemed proper to include it in this group.

Group IX includes the revenues from direct and indirect taxation. It has already been explained that the four items 107 to 110 represent all sources of revenue other than earnings from fees, fines, sale of property, interest, etc., which are credited to the proper departments or accounts, as offsets to expenses or interest paid out. Rebates for overpayments or deposits on customs or internal revenue collections are deducted from the total so that the sums given are the net revenues.

In the Treasury accounts as shown in the Combined Statement, rebates are charged with other disbursements, and the gross revenues from customs and internal revenue taxes are given without deduction for rebates. The revenues from various sources for 1920 are plotted in Figure 9. The figures are as reported by the Bureau of Internal Revenue, and are not in exact agreement with the figures given in table 1, which are taken from the Treasury records. The disagreement



ANALYSIS OF U.S. TAX REVENUE-1920
 TOTAL — \$5,715,940,080
 (AS REPORTED BY DIVISION OF INTERNAL REVENUE)

FIGURE 9

Fig. 9 shows the distribution by source of U. S. tax revenue for the fiscal year 1920. It represents the 1920 column of table 11. The amount given for Internal Revenue is over \$28,000,000, about half of one per cent, higher than the corresponding item in table 1, line 2. The discrepancy is due to the fact that the items reported by the Division of Internal Revenue include sums that are deducted as refunds and rebates but which are paid out of a separate fund in the Treasury, and also sums that are collected but not deposited in the Treasury just before the close of the fiscal year.

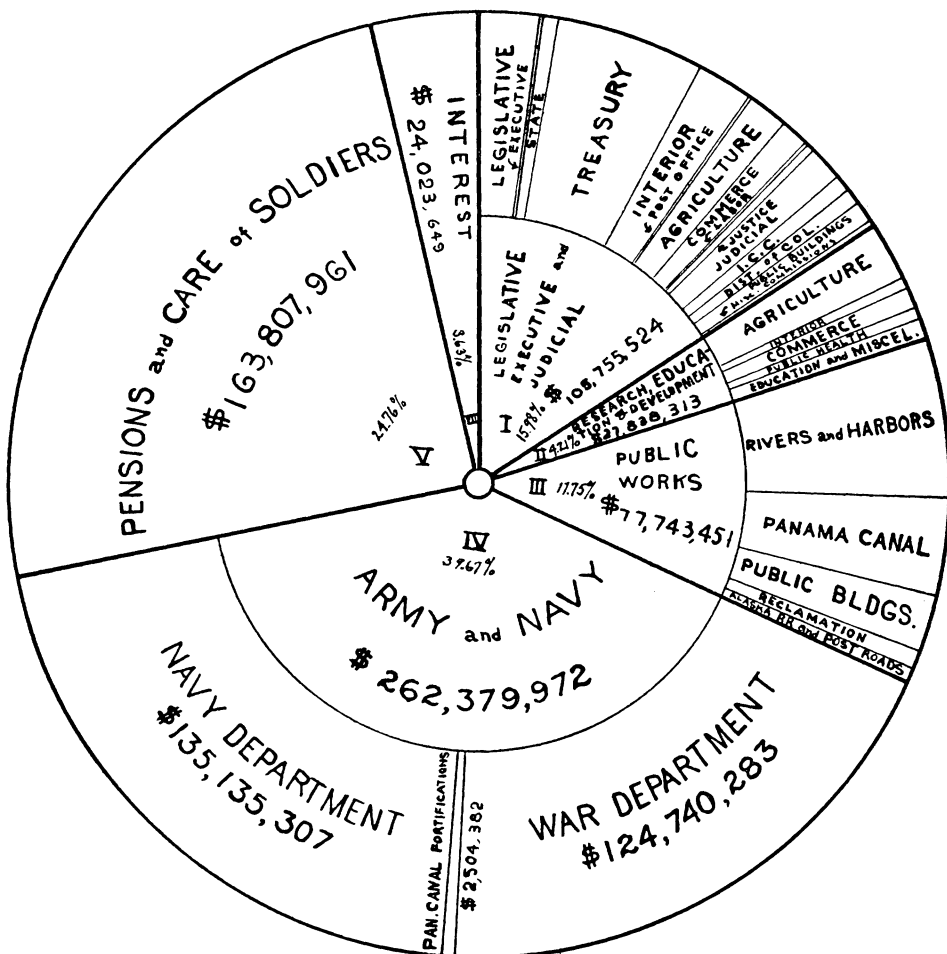
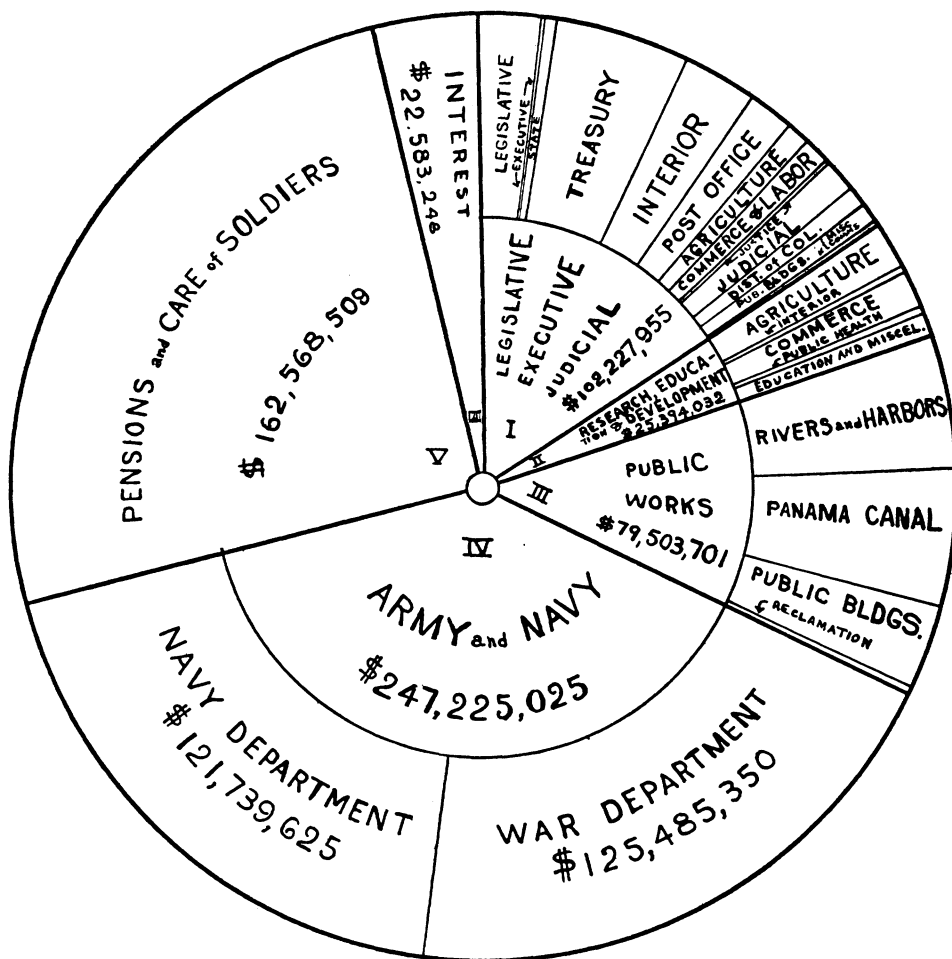


FIGURE 10

Fig. 10 shows the average cost of the Federal Government for the ten fiscal years 1910-19, excluding the cost of the war. This is the amount payable from taxation, after deducting from every department the credits due to fees, fines or other earnings, as well as receipts from government property sold. The army and navy expenses for 1917-1919 are estimated on the pre-war basis, and the same is done for pensions and interest. The ten-year average for Group I is about the same as for 1915; for Group II it is less than for 1915, and for Group III it is less than for any year prior to 1915. The average total expense for this ten-year period (exclusive of war expenditures) was \$661,548,871; the highest year was 1919 and the lowest 1911. On the basis of per capita cost, however, the highest year was 1910; and the lowest was 1917.

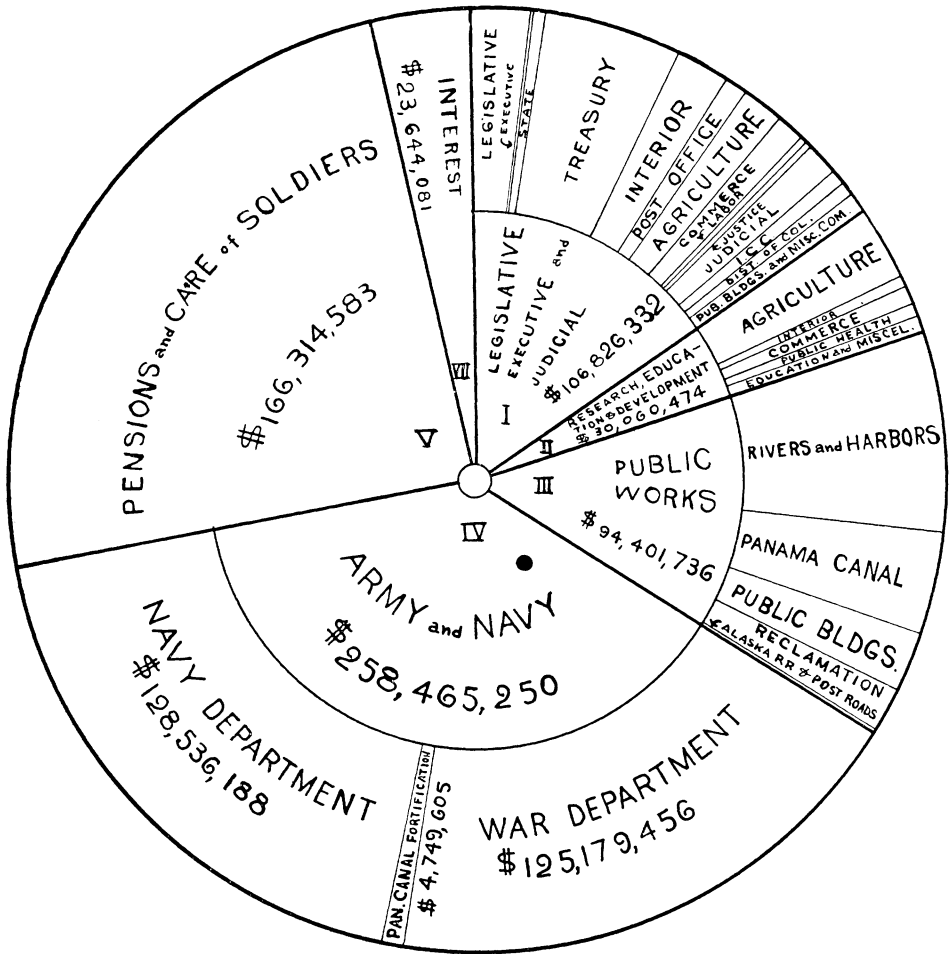


1910
NET EXPENDITURE OF FEDERAL GOVERNMENT

TOTAL \$639,502,470
CIVIL \$207,125,688

FIGURE 11

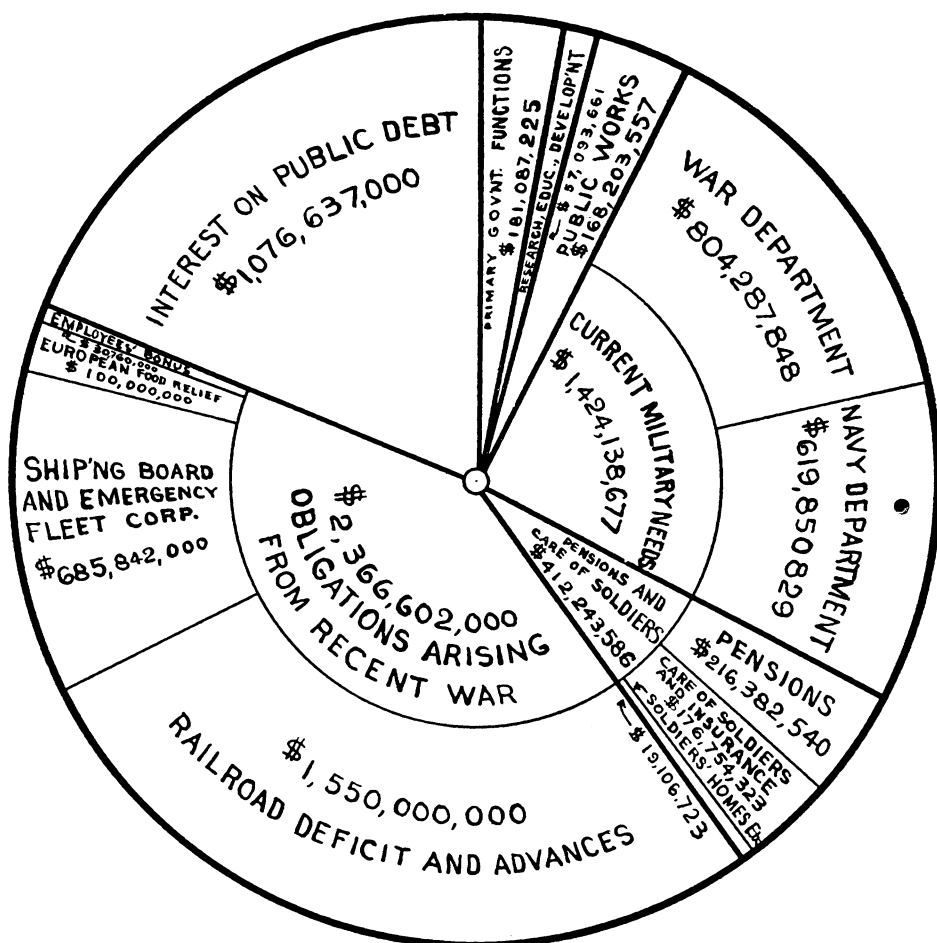
The net expenses of the Federal Government in 1910 were \$639,502,470. This is the amount payable from taxation, after deducting from every department the credits due to fees, fines or other earnings as well as receipts from government property sold. A little less than one-third the total is for all the civil activities, and the remainder is for army and navy, pensions and interest. The total expense divided by the population of the country for that year gives \$6.93 as the annual per capita cost of the Federal Government in 1910 of which \$2.24 represented the cost of all the civil activities.



1915
 NET EXPENDITURE OF FEDERAL GOVERNMENT
 TOTAL \$679,712,456
 CIVIL \$231,288,542

FIGURE 12

Fig. 12 shows the distribution of net expenses for 1915, the total being 40 millions more than in 1910. Rivers and Harbors had an unusually large sum in 1915, \$16,666,486 more than in 1910, Agriculture \$11,409,889 more, the Treasury \$1,786,917 more, Navy and Panama Canal fortifications combined 11 millions more. Owing to the increase of 7½% in the population in the five years between 1910 and 1915, the per capita cost of the government was less in 1915 than in 1910, namely \$6.84 as against \$6.93.



DISTRIBUTION OF GOVERNMENT APPROPRIATIONS
FOR FISCAL YEAR 1920
TOTAL—\$ 5,686,005,706

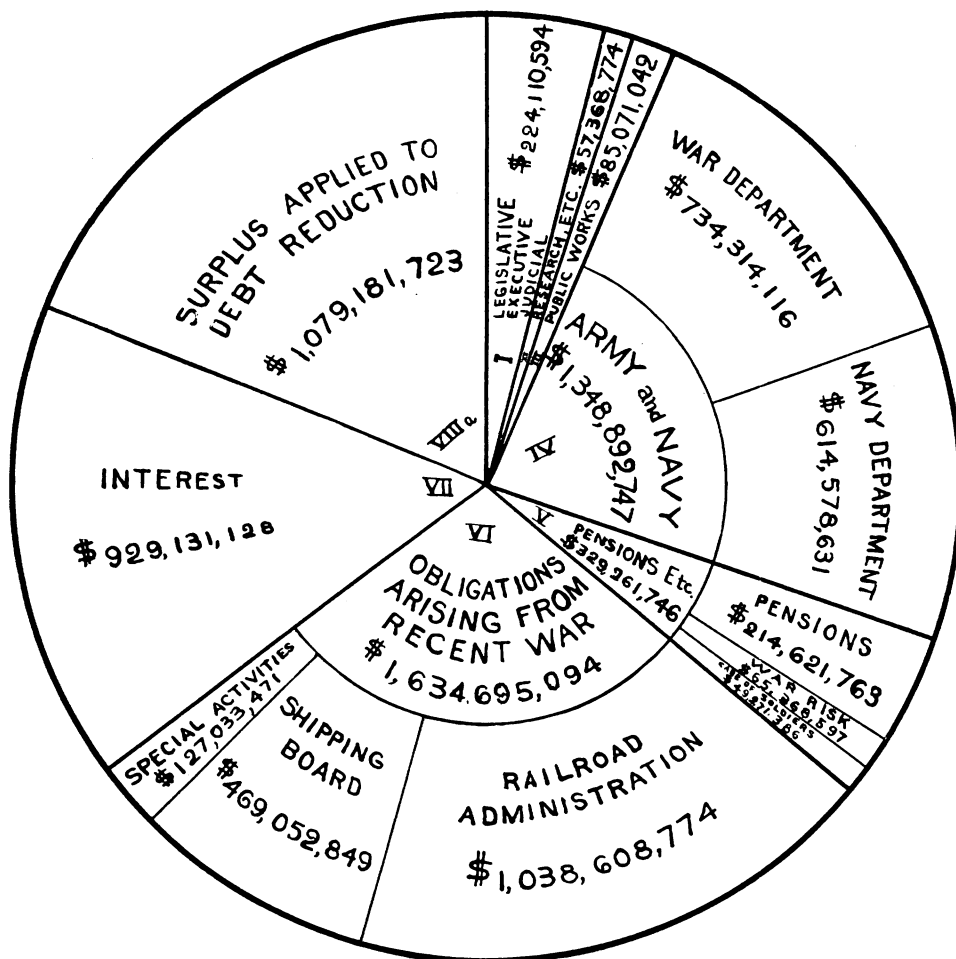
FIGURE 13

Fig. 13 presents an analysis of the *appropriations* for the fiscal year ending June 30, 1920. The appropriations included in all the regular supply bills and the three deficiency bills passed prior to May 1, 1920, amounted to \$5,686,005,706.

The appropriations were classified under six main headings which, with the corresponding percentages of the total allotted to each, are as follows:

	Per cent
Obligations arising from recent and previous wars.....	67.81
Army and Navy.....	25.02
Primary government functions (legislative, executive and judicial).....	3.19
Public Works (permanent construction).....	2.97
Research, educational, and developmental work.....	1.01
Commercial or self-supporting activities (Post Office, Patent Office, Panama Canal, etc.).....	.....
TOTAL.....	100.00

For details regarding the classification and a discussion of the research, educational and developmental work see "The Economic Importance of the Scientific Work of the Government," *Journal, Washington Academy of Sciences*—Vol. 10, No. 12, June 19, 1920.



TOTAL NET EXPENDITURES—1920

\$ 5,687,712,848

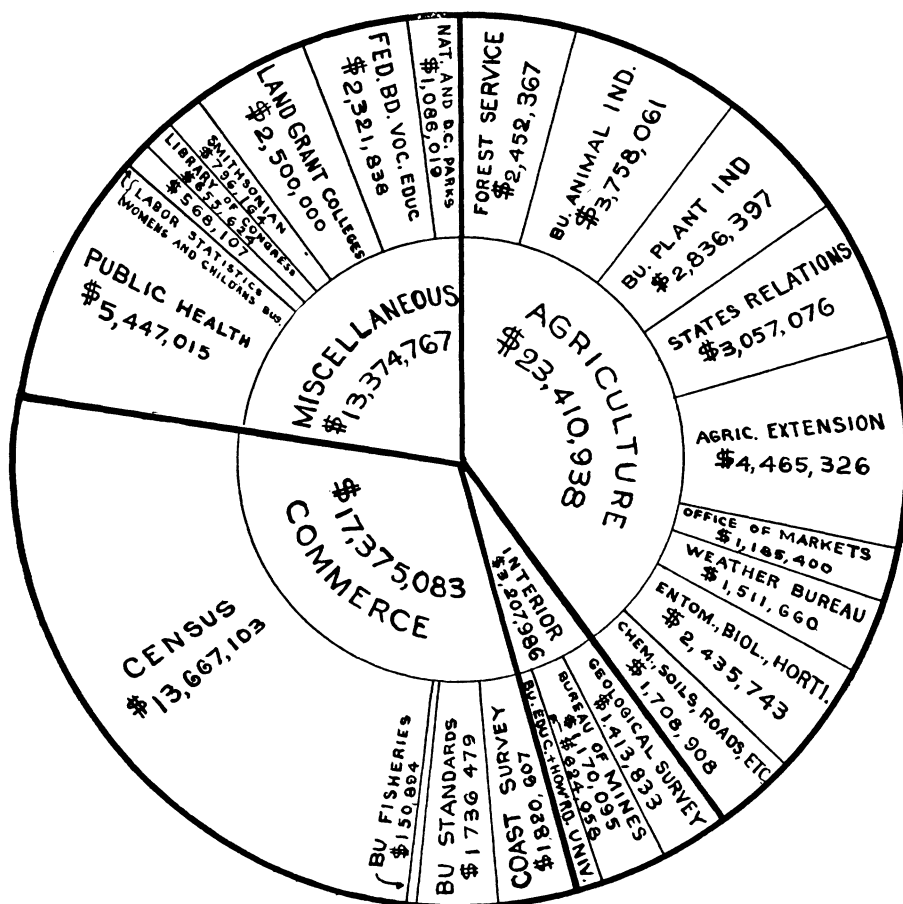
(NOT INCLUDING LOANS AND TRUST FUNDS)

FIGURE 14

This figure represents the total net expense for 1920 (as shown in Fig. 1) and in addition, the sum of \$1,079,181,723,—which is the surplus of total net tax revenue (as shown in Fig. 2) or total net expenses,—applied to the reduction of the Public Debt. This item is included with the current expense items shown in the figure in order to show the disposition of the entire amount collected by taxation.

The percentage distribution of the expenditures is as follows:

Primary Governmental Functions	3.9%
Research, Education, Development	1.0
Public Works—New Construction	1.5
Army and Navy	23.7
Pensions (5.8), Interest (16.3), Debt Reduction (19.1), and Recent War Obligations (28.7)	69.9
Total	100.0%



GROUP II—RESEARCH, EDUCATION AND DEVELOPMENT NET EXPENDITURES—FISCAL YEAR 1920—\$57,368,774

FIGURE 15

This figure shows the allocation of net expense in 1920 under Group II—Research Education and Development. The percentage distribution of expenses among the subgroups is as follows:

Agriculture—Group II.....	40.8%
Interior—Group II.....	5.6
Commerce—Group II.....	30.3
Miscellaneous Welfare and Education.....	23.3

Total.....	100.0%
------------	--------

is caused by the fact that money collected by the Internal Revenue can not be turned over to the Treasury and entered on its books the same day, and hence at the end of the fiscal year there will be a difference in totals, which is not the same as at the beginning of the year, and also by the fact that the rebates for over-payments have not been deducted.

Figure 9 is a graphical representation of the 1920 column of Table 11, which gives the receipts from internal revenue, customs and tax on national bank circulation for the eleven fiscal years, 1910-20, inclusive. During the first four years internal revenue is tabulated under four headings, distilled spirits and beverages, tobacco, excise tax on corporations and miscellaneous, the latter including oleomargarine, certain kinds of butter, etc. In 1914 income tax was added to the number, and later the five other headings shown in the table. This table is self-explanatory, and shows clearly the sources of the government's income from taxation and how it has grown in recent years.

Expenditures Before and During the War

Group I. Table 14 gives in the first column the average net expenditures for the seven pre-war years of the one hundred and six branches into which the activities of the Federal Government have been subdivided in this classification; in the second column the average net expenditures during the three war years, 1917, 1918 and 1919; and in the last column the net expenditures for 1920. The war began only three months before the end of the fiscal year 1917, and comparatively small war expenditures fell in that fiscal year, so that the three year average for most of the war

TABLE 11
REVENUES OF U. S. GOVERNMENT
FISCAL YEARS 1910-1920

	1910	1911	1912	1913	1914
<i>Internal Revenue</i>					
1. Income Tax		\$219,647,635.90	\$219,660,258.28	\$230,146,332.14	\$60,710,197.52
2. Distilled Spirits and Beverages	\$208,601,600.08	67,005,950.56	70,590,151.60	76,789,424.75	226,179,689.76
3. Tobacco	58,118,457.03	33,511,525.00	28,583,259.81	35,006,299.84	79,986,639.68
7. Excise Tax on Corporations	20,959,958.59	2,361,188.27	2,782,225.00	2,482,397.12	10,671,077.22
10. Misc. (Butter, Oleomargarine, etc.)	2,277,204.46				2,461,289.78
Total Internal Revenue*	\$289,957,220.16	\$322,526,299.73	\$321,615,894.69	\$344,424,453.85	\$380,008,893.96
Customs—Total	323,519,307.50	303,068,042.49	301,770,569.79	310,257,199.09	283,773,870.45
Tax on National Bank Circulation	3,333,011.03	3,503,502.48	3,637,008.78	3,730,059.08	3,883,198.14
<i>Total</i>	\$616,809,538.69	\$629,097,844.70	\$627,023,473.26	\$658,411,712.02	\$667,665,962.55

TABLE 11.—Continued

<i>Internal Revenue</i>	1915	1916	1917	1918	1919	1920
1. Income and Excess Profits.....	\$80,201,758.86	\$124,937,252.61	\$387,382,343.96	\$2,852,324,865.89	\$2,600,783,902.70	\$3,956,936,003.60
2. Distilled Spirits and Beverages.....	223,948,646.09	247,453,543.52	284,008,512.02	446,054,726.01	490,233,073.72	197,332,105.84
3. Tobacco.....	79,957,373.54	88,063,947.51	103,201,592.16	156,188,659.90	206,003,091.84	295,809,355.44
4. Transportation, Communication and Ins.....	.....	.....	.....	77,228,575.49	252,348,453.61	307,769,841.36
5. Luxuries (Autos, Candy, Furs, etc.).....	3,635,338.13	4,905,815.19	1,492,865.68	37,846,983.79	81,357,473.54	270,971,064.27
6. Estate Inheritance.....	.....	.....	6,076,575.26	47,452,879.78	82,029,983.13	103,635,363.24
7. Capital Stock of Corp.'s, Brokers, etc.....	3,367,797.87	4,900,907.16	13,303,434.50	25,329,601.11	29,824,327.95	95,141,732.50
8. Stamps on Legal Documents	20,494,474.75	38,110,282.49	8,254,341.88	21,874,734.47	43,751,340.04	81,259,365.47
9. Admissions to Amusements.....	1,599,381.31	2,007,201.05	2,405,298.37	30,974,585.67	58,664,876.88	89,710,525.59
10. Miscellaneous.....	2,476,253.31	2,344,338.24	3,268,676.01	3,680,208.82	5,153,555.15	9,014,694.50
Total Internal Revenue*.....	\$415,681,023.86	\$512,723,287.77	\$809,393,640.44	\$3,698,955,820.93	\$3,850,150,078.56	\$5,407,580,251.81
Customs—Total.....	197,663,176.16	194,356,351.59	206,027,585.45	167,073,638.00	171,110,221.07	296,274,230.35
Tax on National Bank Circulation.....	3,908,606.90	3,838,034.25	3,611,802.43	4,691,310.26	3,806,646.42	7,172,598.48
Postal War Revenue.....	.....	.....	.....	39,073,000.00	71,906,000.00	4,913,000.00
Total.....	\$617,252,806.92	\$710,917,673.61	\$1,019,033,028.32	\$3,909,793,769.19	\$4,096,972,946.05	\$5,715,940,080.64

* Only Customs and Bank Tax items are net. The Internal Revenue items must be corrected for refunds and rebates, averaging about half of one per cent, paid out of a separate fund in the Treasury. The corrected net totals are given in Table I.

TABLE 12
AVERAGE ANNUAL NET EXPENDITURES OF FEDERAL GOVERNMENT
(EXCLUSIVE OF WAR COST 1917-1919)
FISCAL YEARS 1910-1919

Group	Amount	Per Cent of Total
I—Primary Governmental Functions.....	\$105,755,525	16.0%
II—Research, Education, Development.....	27,838,313	4.2
III—Public Works.....	77,743,450	11.7
Average Annual Civil (I-II-III).....	\$211,337,288	31.9%
IV—Army and Navy.....	\$262,379,972*	39.7%
V—Pensions and Care of Soldiers.....	163,807,961*	24.8
VII—Interest.....	24,023,649*	3.6
Average Annual Total.....	\$661,548,870	100.0%

* For the years 1917-1919 it is assumed that the annual expenditures for Groups IV, V, and VII would normally have been \$275,000,000, \$160,000,000 and \$25,000,000 respectively. See Table 13.

TABLE 13
NET EXPENDITURES (NORMAL) OF FEDERAL GOVERNMENT
FISCAL YEARS 1910-1919

Year Ending June 30	Civil Groups I-II-III		Army and Navy IV Net Amount	Pensions Interest V-VII Net Amount	Total	
	Net Amount	Per Capita			Net Amount	Per Capita
1910.....	\$207,125,688	\$2.24	\$247,225,025	\$185,151,757	\$639,502,470	\$6.93
1911.....	196,640,988	2.10	243,019,696	182,896,574	622,557,259	6.65
1912.....	202,511,853	2.13	247,018,430	178,807,271	628,337,554	6.61
1913.....	210,039,082	2.18	250,205,646	202,516,926	662,761,653	6.87
1914.....	210,162,388	2.15	264,814,047	199,233,674	674,210,109	6.89
1915.....	231,288,542	2.33	258,465,250	189,958,664	679,712,456	6.84
1916.....	201,427,156	2.00	288,051,628	184,751,235	674,230,020	6.69
1917.....	199,860,650	1.96	275,000,000*	185,000,000*	659,860,650	6.47
1918.....	222,458,285	2.15	275,000,000*	185,000,000*	682,458,285	6.58
1919.....	231,858,252	2.21	275,000,000*	185,000,000*	691,858,252	6.58
Total.....	\$2,113,372,884	\$21.43	\$2,623,799,722	\$1,878,316,101	\$6,615,488,708	\$67.08
Average..	211,337,288	2.14	262,379,972	187,831,610	661,548,871	6.71
Percentage of total..	31.9%		39.7%	28.4%	100.0%	

* Estimated normal amounts.

agencies is considerably below the average of 1918 and 1919.

Under Legislative, the expense in war years averaged only 15 per cent more than in the prewar years. Most of this increase was in the government printing office, and considering the increase in the cost of labor and materials during these years, this is not a surprising increase.

Under Executive, the increase is mainly due to the heavy increase in the work thrown upon the Civil Service Commission by the war and the growth of the new Bureau of Efficiency.

The State Department had enormously increased responsibilities during the war, and its average was almost 100 per cent above the prewar average.

In the Treasury item 12, administrative, increased very largely. This, however, included additional compensation to all employes of the Treasury. The Internal Revenue more than doubled in cost; the Coast Guard increased 60 per cent; the Bureau of Engraving and Printing increased nearly 25 per cent; and the total (excluding those parts of the Treasury included in groups II, III and V) increased 46 per cent. Loans and currency show a decrease in net expense due to unusually large earnings during the war.

The average increase in the net expenditures of that part of the Interior Department included in group I during the war was 20 per cent. One-half of this increase was in item 25, the Indian Service, and the other half in all other items, and was largely due to the increased compensation of employes. The Patent Office earned a surplus almost as large as before the war.

The Post Office Department had a considerable surplus in each of the three war years, the average being \$8,156,550. In the seven pre-war years the average net cost (deficit) of the

Post Office Department, including overhead management, was \$4,189,546. That makes a difference of over twelve million dollars a year in the balance sheet, in comparison with pre-war years, and offsets a considerable part of the extra cost of group I in the war period.

The Department of Agriculture expended on the activities included in group I, 49 per cent more than the average of the seven pre-war years. This was, however, a gradual growth, being only 20 per cent more than 1915 and 10 per cent more than 1916.

The activities of the Department of Commerce included in group I increased in cost by 22 per cent over the pre-war average, but only 15 per cent over the average of 1915 and 1916. The Bureau of Navigation was more than self supporting, due to the large number of fees collected.

The principal part of the Department of Labor included in group I is the Immigration Service. Before the war, owing to a very large immigration, it earned a surplus. During the war, when immigration was greatly reduced, its earnings fell to about one-fourth of those of 1913 and 1914, and the average net expense of the department was \$2,464,156 per year instead of an average surplus of \$391,433 as it was before the war.

The activities of the Department of Justice were greatly increased during the war and its net expenses were 67 per cent greater than the average of pre-war years, and 54 per cent greater than in 1915 and 1916.

The federal courts and penal establishments increased in cost during the war by only about 10 per cent above the average of pre-war years.

The work of the Interstate Commerce Commission increased in cost in the war years about 133 per cent over the average of pre-war years. This

TABLE 14
AVERAGE ANNUAL NET EXPENDITURES OF U. S. GOVERNMENT—FISCAL YEARS 1910-1920
For 7 Pre-war Years, 3 War Years, and in 1920

	Average 1910-1916	Average 1917-1919	1920
GROUP I—PRIMARY GOVERNMENTAL FUNCTIONS			
<i>Legislative</i>			
1. Senate.....	\$1,378,445	\$1,961,681	\$2,585,046
2. House of Representatives.....	4,980,174	5,345,202	7,057,763
3. Legislative, Miscellaneous.....	359,756	407,208	221,360
4. Capitol Buildings and Grounds.....	1,045,913	826,463	895,237
5. Government Printing Office.....	5,232,287	7,025,587	8,507,117
Total.....	\$13,496,575	\$15,566,141	\$19,266,523
<i>Executive</i>			
6. President, Vice President, etc.....	\$199,696	\$204,194	\$225,152
7. Civil Service Commission.....	307,594	479,264	541,747
8. Bureau of Efficiency.....	19,939	84,907	150,908
9. Tariff and other Commissions.....	125,206	168,662	298,244
Total.....	\$688,193†	\$937,027	\$1,216,051
<i>State Department</i>			
10. State Department Proper.....	\$330,462	\$602,273	\$1,269,402
11. Diplomatic and Consular Service.....	2,284,181	4,589,567	7,251,115
Total.....	\$2,614,643	\$5,191,840	\$8,520,517

† See note p. 60.

<i>Treasury</i>			
12. Administrative, Clerical, etc.	\$834,983	\$2,649,865	\$12,670,141
13. Auditors, Comptrollers, Treasurer, etc.	2,357,216	2,739,914	4,484,100
14. Customs	9,065,061	8,972,951	9,049,870
15. Internal Revenue	6,154,288	13,969,599	29,450,125
16. Coast Guard	5,040,764	8,032,919	10,324,940
17. Bureau of Engraving and Printing	3,615,901	4,477,722	5,659,590
18. Independent Treasury, Mint, etc.	1,565,331	1,985,600	1,908,731
19. Fiscal: Loans and Currency, etc.	1,047,076	511,758	2,105,880
Total	\$29,680,620	\$43,290,328	\$75,653,377
<i>Interior</i>			
20. Office of Secretary and Miscellaneous	\$933,770	\$1,993,113	\$3,456,828
21. Land Office and Land Service	1,830,292	2,059,827	1,572,853
22. Patent Office	— 633,985*	— 635,851*	— 962,397*
23. Hospital and Relief	573,372	756,258	1,186,036
24. Territorial Governments	229,017	99,735	18,616
25. Indian Office and Indian Service	9,537,654	10,724,599	11,971,123
Total	\$12,420,120	\$14,997,681	\$17,243,059
<i>Post Office Department</i>			
26. Post Office Department Proper	\$1,682,991	\$1,757,295	\$2,239,339
27. Postal Service Miscellaneous	250,271	150,537	35,972,003
28. Postal Service Deficit or Surplus	2,256,284	— 10,064,382*	— 185,146*
Total	\$4,189,546	\$— 8,156,550*	\$38,026,196
<i>Department of Agriculture</i>			
29. Salaries and Miscellaneous Expenses	\$3,632,397	\$5,963,563	\$8,930,361
30. Meat Inspection Service	3,034,176	3,420,697	3,753,943
31. Land to Protect Watersheds	(6 yrs.) 745,962	1,336,957	663,271
32. Enforcement of Grain Standards, etc.	677,440	1,149,550	1,260,884
Total	\$7,983,409†	\$11,870,767	\$14,608,459

* Surplus.

† See note p. 60.

TABLE 14—(Continued)

	Average 1910-1916	Average 1917-1919	1920
<i>Group I—(Continued)</i>			
<i>Department of Commerce</i>			
33. Office of Secretary and Miscellaneous.....	\$284,849	\$672,218	\$2,224,392
34. Bureau of Navigation.....	—109,504*	—20,576*	208,765
35. Steamboat Inspection Service.....	522,329	683,637	969,644
36. Bureau of Lighthouses.....	5,510,293	6,037,291	8,896,989
37. Foreign and Domestic Commerce.....	217,305	476,189	860,274
Total.....	\$6,425,272	\$7,848,759	\$13,155,064
<i>Department of Labor</i>			
38. Office of Secretary and Miscellaneous.....	\$140,047	\$311,685	\$1,243,392
39. Immigration and Naturalization.....	—531,480*	2,152,471	113,034
Total.....	—\$391,433*	\$2,464,156	\$1,356,426
<i>Department of Justice</i>			
40. Salaries, Expenses and Sundries.....	\$1,402,695	\$2,349,038	\$4,496,082
Total.....	\$1,402,695	\$2,349,038	\$4,496,082
<i>Judicial</i>			
41. Federal Courts and Penal Establishments.....	\$7,410,377	\$8,127,740	\$10,789,974
Total.....	\$7,410,377	\$8,127,740	\$10,789,974

GROUP I—(Continued)			
<i>Independent Commissions and Activities</i>			
42. Interstate Commerce Commission.....	\$5,409,613	\$5,750,470	
43. Federal Trade Commission.....	919,868	1,019,446	
44. Employees Compensation and Retirement.....	807,961	2,239,225	
45. Miscellaneous Commissions.....	—109,365*	—571,408*	
46. District of Columbia.....	3,894,556	7,483,263	
47. Panama Canal—Maintenance and Operation.....	2,433,763	—3,863,503*	
48. Public Buildings and Grounds—Maintenance and Operation.....	6,665,750	7,721,373	
49. Extraordinary Expenses.....	.....	.....
Total.....	\$20,022,146	\$19,778,866	
GROUP I—Total.....	\$124,509,073	\$224,110,594	
GROUP II—RESEARCH, EDUCATION, DEVELOPMENT			
<i>Department of Agriculture</i>			
50. Forest Service.....	\$2,231,519	\$736,085	
51. Bureau of Animal Industry.....	2,112,579	2,718,565	
52. Bureau of Plant Industry.....	1,957,768	2,408,606	
53. States Relation Service.....	1,722,089	2,840,113	
54. Cooperative Agricultural Experiment Work.....	777,467	2,076,081	
55. Markets and Rural Organization.....	158,393	754,155	
56. Weather Bureau.....	1,471,236	1,432,217	
57. Bureau of Entomology.....	584,605	787,752	
58. Bureau of Chemistry.....	148,144	226,580	
59. Bureau of Biological Survey.....	159,161	538,558	
60. Public Roads and Rural Engineering.....	387,354	477,544	
61. Bureau of Soils.....	237,903	340,517	
62. Bureau of Crop Estimates.....	126,040	204,761	
63. Farm Management and Farm Economics.....	220,408	201,637	
64. Horticulture and Insecticide.....	.....	241,040	
65. Miscellaneous.....	54,050	48,355	
Total.....	\$11,528,858	\$16,033,566	
GROUP II—Total.....		\$23,410,938	

* Surplus. † See note p. 60.

TABLE 14—(Continued)

	Average 1910-1916	Average 1917-1919	1920
GROUP II—(Continued)			
<i>Department of Interior</i>			
66. Geological Survey.....	\$1,251,759	\$1,422,734	\$1,413,833
67. Bureau of Mines.....	520,846	1,377,907	1,170,095
68. Bureau of Education and Howard University.....	398,359	446,365	624,058
Total.....	\$2,170,964	\$3,247,006	\$3,207,986
<i>Department of Commerce</i>			
69. Coast and Geodetic Survey.....	\$1,008,598	\$1,116,012	\$1,320,607
70. Bureau of Standards.....	562,976	1,248,169	1,736,479
71. Bureau of Fisheries.....	870,029	904,252	150,894
72. Bureau of the Census.....	2,912,872	1,122,513	13,667,103
Total.....	\$5,354,475	\$4,390,946	\$17,375,083
<i>Miscellaneous</i>			
73. Public Health Service.....	\$2,175,298	\$3,943,049	\$5,447,015
74. Bureau of Labor Statistics.....	(4 yrs.) 220,867	360,670	301,749
75. Children and Women's Bureau.....	(4 yrs.) 84,055	270,346	266,358
76. Library of Congress.....	491,637	528,425	655,624
77. Smithsonian Institute and National Museum.....	724,341	658,519	796,164
78. Colleges for Agriculture and Mechanic Arts.....	2,392,857	2,500,000	2,500,000
79. Federal Boards for Vocational Education.....	.....	(2 yrs.) 1,480,450	2,321,838
80. National and D. C. Parks, Botanical Gardens.....	316,637	773,116	1,086,019
Total.....	\$6,275,031†	\$10,021,092†	\$13,374,767
Group II—Total.....	\$25,329,328	\$33,692,610	\$57,368,774

† See note p. 60

GROUP III—PUBLIC WORKS				
81. Rivers and Harbors.....	\$37,759,755	\$29,643,095	\$47,445,010	
82. Panama Canal Construction.....	28,133,498	5,835,581	1,081,175	
83. Public Buildings, New Construction.....	14,583,141	11,038,504	6,529,736	
84. Rural Post and Forest Roads.....	(1 yr.) 265,327	1,568,388	25,021,008	
85. Alaska Railway.....	(4 yrs.) 1,213,556	8,742,468	6,240,053	
86. Reclamation Service.....	4,201,152	3,029,344	-1,245,940*	
GROUP III—Total.....	\$85,408,910†	\$59,857,380	\$85,071,042	
GROUP IV—ARMY AND NAVY				
87. War Department (except Rivers and Harbors, etc.).....	\$122,557,893	\$5,084,199,160	\$728,416,853	
88. Navy Department.....	132,388,753	1,213,377,684	614,578,630	
89. Armament and Fortification—Panama Canal.....	(6 yrs.) 2,178,093	3,991,874	3,433,593	
90. Maintenance and Care—State, War and Navy Buildings.....	157,918	753,387	2,463,671	
GROUP IV—Total.....	\$256,971,389†	\$6,302,322,105	\$1,348,892,747	
GROUP V—PENSIONS AND CARE OF SOLDIERS				
91. Pension Office and Pensions.....	\$165,300,623	\$189,095,246	\$214,621,763	
92. War Risk Insurance.....	.....	(2 yrs.) 69,825,835	65,368,597	
93. Rehabilitation of Soldiers, Federal Board of Vocational Education.....	.....	(1 yr.) 1,900,409	32,659,836	
94. Care of Soldiers—Public Health Service.....	(4 yrs.) 243,812	537,710	16,611,550	
GROUP V—Total.....	\$165,439,944†	\$236,816,982†	\$329,261,746	
GROUP VI—OBLIGATIONS ARISING FROM RECENT WAR				
95. Railroad Administration.....	.....	(2 yrs.) \$248,183,400	\$1,039,608,774	
96. Shipping Board.....	.....	916,062,079	469,052,849	
97. Food and Fuel Administration.....	.....	(2 yrs.) 86,379,236	-1,860,292*	
98. Miscellaneous Boards and Commissions.....	.....	24,746,561	-3,322,865*	
99. Special War Activities.....	.....	41,404,777	132,216,619	
GROUP VI—Total.....	.....	\$1,205,255,174†	\$1,634,695,094	

* Surplus.

† See note p. 60

TABLE 14—(Concluded)

	Average 1910-1916	Average 1917-1919	1920
GROUP VII—INTEREST			
100. Interest on Public Debt.....	\$22,286,593	\$270,926,205	\$957,558,754
101. Interest on Loans and Trust Funds.....	1,318,620	—155,072,965*	—28,427,626*
GROUP VII—Total.....	\$23,605,213	\$115,853,240	\$929,131,128
GROUP VIII—PUBLIC DEBT, LOANS AND TRUST FUNDS			
102. Public Debt Transactions.....	—\$11,401,317*	—\$8,085,631,219*	\$1,184,098,321
Total Public Debt.....	—\$11,401,317*	—\$8,085,631,219*	\$1,184,098,321
103. Loans to European Governments.....	.....	\$3,031,571,672	\$350,291,839
104. Loans to Farmers, Banks, etc.....	.....	169,059,882	176,277,057
105. Seigniorage.....	—\$5,265,602*	6,163,925	—11,890,120*
106. Trust Funds.....	283,191	3,999,039	—793,522*
Total Loans and Trusts.....	—\$4,982,411*	\$3,210,794,518	\$513,885,254
GROUP IX—REVENUE			
107. Customs.....	\$273,486,931	\$181,403,815	\$296,274,230
108. Internal Revenue.....	368,924,751	2,774,804,615	5,379,353,020
109. Tax on Bank Circulation.....	3,690,489	4,036,586	7,172,598
110. Post Office War Revenue.....	.....	(2 yrs.) 55,489,500	4,913,000
GROUP IX—Total.....	\$645,502,171	\$2,997,238,016†	\$5,687,712,8

* Surplus.

† Note: In cases where some items extend through less than the full period the sum given is the weighted mean for the period, not the simple sum of the amounts given.

was due mainly to the valuation of the railways which began in the latter part of the pre-war period.

The total for group I averaged \$97,718,290 in the seven pre-war years and \$124,509,073 during the war, an increase of 26 per cent. More than half of this increase was in the Treasury Department. Compared with the average of 1915 and 1916, the increase in total was only 12 per cent. That is partly accounted for by the normal growth of the government, partly by increased war activities and partly by increased cost of supplies and wages in the later years. Although it is reduced appreciably by the surplus of the Post Office, comparison of costs with those of private business would show that these figures for the government are exceedingly moderate, less than one might have expected.

Group II. Half of the thirty-one services listed in group II are in the Agricultural Department. The average expenditure for the activities of this department which are included in group II was \$11,528,858 per year during the seven pre-war years and \$16,033,566 per year for the three war years, an increase of 39 per cent. The Forest Service had a much smaller net expense during the war than before, owing to the very large earnings (see table 15). The Bureau of Animal Industry increased 29 per cent over the pre-war average, although it was no increase over 1916, and only half of what was spent in 1915. During these two years five million dollars was appropriated for the eradication of foot and mouth and other contagious animal diseases. Similarly, the Bureau of Plant Industry expended in the war years 23 per cent more than in the average of the seven pre-war years, but no more than 1915 and 1916. The States Relation Service succeeded the Agricultural Experiment Stations in

1915 and this work has since that time greatly increased. The average expenditure during the six years 1910 to 1915 was slightly more than one and a half millions of dollars per year. In 1916 it was \$2,607,013 and during the three war years it averaged \$2,840,113. Coöperative Agricultural Extension work began in 1915 with an expenditure of \$480,000. In 1916 it spent \$1,074,935, and during the three war years it averaged \$2,076,081. Markets and Rural organizations began in 1914, and averaged \$158,393 in 1914, 1915 and 1916, and \$754,155 in the three war years. The Weather Bureau averaged \$1,432,217 during the war years, being slightly less than during the preceding seven years. Nearly all the remaining bureaus of the Agricultural Department increased their expenditures during the war years as compared with pre-war years. Entomology increased 35 per cent, Chemistry 53 per cent, Biological Survey 238 per cent, Public Roads and Rural Engineering 23 per cent, Soils 43 per cent, and the remaining miscellaneous activities (items 62-65) 74 per cent.

In the Interior Department the Geological Survey increased its expenditure during the war years by 14 per cent over the average of the pre-war years; the Bureau of Mines (newly established in 1910) 164 per cent, and the Bureau of Education and Howard University together 12 per cent, the total for the department having increased 50 per cent, or 10 per cent per year on the average for the five years between the middle of the two periods.

In the Department of Commerce the Coast and Geodetic Survey increased its expenditures during the war years about 11 per cent over the average of the pre-war years, the Bureau of Standards (a relatively new and growing bureau) 22 per cent, the Bureau of

Fisheries 4 per cent, while the Bureau of the Census decreased largely, owing to the fact that the Census of 1910 was included in the earlier period. The Census expended during the three war years an average of \$1,122,000 per year, which was slightly less than during the years 1914, 1915, 1916. The total for the department was on the average nearly a million dollars a year less during the war than before, but omitting the extra cost of the census of 1910, there was a small increase.

In the Public Health Service the expenditures in the war years increased 81 per cent over the average of the seven pre-war years. The Bureau of Labor Statistics and the Children's Bureau (both in the Department of Labor) were organized in 1913 and started very small so that the percentage increase was relatively large, being 63 per cent for the first and 221 per cent for the second. The net expenses of the Library of Congress averaged \$491,657 during the seven pre-war years and \$528,425 during the three war years, an increase of 7.5 per cent. The Smithsonian Institution and the National Museum averaged \$658,519 during the three war years, which was \$65,822 less than the average during the pre-war period.

The expenditures for Colleges of Agriculture and Mechanic Arts amounted to \$2,000,000 in 1910, \$2,250,000 in 1911, and since then it has been \$2,500,000 every year. The Federal Board for Vocational Education was in operation only during 1918 and 1919, and its expenditures were \$1,412,883 in 1918 and \$1,548,017 in 1919. National and District of Columbia Parks and the Botanical Gardens cost \$316,637 on the average during the seven pre-war years and \$773,116 during the three war years.

The total for group II was \$25,329,328 on the average for the prewar years

and \$33,692,610 per year for the three war years, an increase of 33 per cent.

Group III. In group III there were considerable reductions in several items during the war period, partly because of the war and partly because the Panama Canal was very nearly completed by 1915.

For River and Harbor improvements the expenditures averaged \$37,759,755 during the pre-war period, and dropped to an average of \$29,643,095 during the war period. For Panama Canal construction the expenditures averaged \$28,133,498 during the pre-war period and only \$5,835,581 during the war period. (This does not include operating expenses or earnings during the five years 1915 to 1919 of this time when it was open to traffic; these are included in group I.) New construction of public buildings cost \$14,583,141 per year during the pre-war period and \$11,038,504 per year during the war. This does not include any of the work of the Bureau of Housing and Transportation, a strictly war activity, which is in group VI, item 98. Rural, post and forest roads had \$265,327 in 1915, the only pre-war year in which anything was spent under this heading. In 1917 there was spent \$34,994, in 1918, \$843,474, and in 1919, \$3,826,694. For the Alaska Railway there was expended a total of \$706,212 during 1913, 1914 and 1915, and \$4,148,011 in 1916. During the next three years the average expenditure was \$8,742,468. The Reclamation Service expended \$4,201,152 on an average during the seven pre-war years and \$3,029,344 per year during the three war years above its earnings from rentals, water rights, and receipts from the sale of land. This includes a loan from the government of \$20,000,000 which is to be repaid, beginning this year. (See footnote to table 8.)

The total expenditures for group III

averaged \$85,408,910 during the pre-war period and \$59,857,380 per year during the war period. The total expenditures for the three civil groups I, II and III averaged \$208,456,528, during the seven pre-war years and \$218,059,063 per year during the three war years, an increase of slightly less than 5 per cent in the five years between the middle of those two periods. The population of the country increased during the same time nearly 8 per cent, so that the average rate of increase of the total expense of the three civil groups was about half as great as the rate of increase of population. The increase of cost of materials and labor was of course considerable, while there was a considerable growth in many bureaus and other branches of the government, and the inauguration of some new ones, and also a very great increase of functions and cost in some cases due to the war. However, the reduction in the construction work included in group III, and the surplus during the war of the post office, nearly counter-balanced these increases, so that the average per capita cost of the three civil groups was actually a little less during the war years than before.

In the military groups the increase during the war was of course very large. For the War Department the net expenditures averaged \$122,557,833 per year during the seven pre-war years and \$5,084,199,160 per year during the three war years, exclusive of the armament and fortifications of the Panama Canal and the care of the war and navy buildings. For the Navy Department the net expenditures averaged \$132,388,753 before the war and \$1,213,377,684 during the war. The total of group IV increased from \$256,971,389 per year to \$6,302,322,105 per year, the latter being nearly twenty-five times the former. More details of the expenditures in the War and Navy Depart-

ments for the period 1910-19 are given in tables 9 and 10. Pensions (item 91) were \$162,568,510 in 1910; they decreased in 1911 and again in 1912, were increased to \$177,070,737 in 1913, decreased steadily until 1917 when they were \$161,818,832; increased to \$182,549,161 in 1918 and again to \$222,917,744 in 1919.

EARNINGS

Table 15 gives the earnings of fourteen different departments or branches of the government included in group I, and the total of all for the ten-year period 1910-19, inclusive. Executive and Justice were very small and are not given, although they are included in the totals of group I. In Legislative, the earnings were almost entirely those of the Government Printing Office except in 1916 and 1917, which include \$409,715 contributed toward the Red Cross Memorial Building, and later disbursed under Legislative Miscellaneous.

State Department earnings were mainly passport and consular fees, and do not include receipts of trust funds which are in item 106. Customs earnings were fines, penalties, forfeitures, payment for night services of customs officers and employes, storage, drayage, costs in customs suits, reappraisements, etc. Treasury Miscellaneous is mainly assessment upon national banks for the expenses of examinations, and other reimbursements from national banks.

Patent Office earnings were the fees for the granting of letters patent. The Indian Service credits are proceeds of sales to Indians and reimbursements on account of moneys advanced to Indians of various tribes in previous years, that is, loans to help them establish themselves. These sums were charged to the Indian Service, but were made with the understanding that

they were to be reimbursed without interest. The large item credited in 1911 was mainly due to a sinking fund that had been accumulating in the Treasury for many years to repay advances to the Chippewa Indians of Minnesota, and which was transferred in 1911 to the general fund. (This does not include the Indians' trust fund account which is in item 106.)

Interior Miscellaneous includes registers', receivers', and copying fees of the General Land Office, proceeds of town sites from the Reclamation Service, depredations on public lands, sales of public timber, royalties for coal mined on public land, deposits for expense of surveying public lands, power permits, etc. Agriculture credits are mainly from the sales of government property. Commerce earnings are mainly navigation fees, fines, penalties and forfeitures, rent of public buildings and grounds, and sales of government property.

Labor earnings are the immigration head tax, naturalization fees, fines, penalties and forfeitures and sales of government property.

Judicial earnings are from judicial fees and costs, judicial fines, penalties and forfeitures, and from unclaimed moneys remaining in registry of courts five years or longer. The District of Columbia credits are the revenues from taxation, the water fund, various trust funds and miscellaneous fees, rents, sales and collections under assessment and permit work. Panama Canal credits (since 1915 when the Canal was opened to traffic) are principally canal tolls, but include also taxes, licenses, fines, proceeds of water works, and sales of government property.

Miscellaneous Commissions, etc., include items 42-45 and items 48 and 49. Before 1915 the credits came principally from item 48, receipts from rents

of public buildings and grounds. Since 1915 the largest credits have been from assessments on federal reserve banks for salaries and expenses of the Federal Reserve Board. For example, in 1919, this was \$2,614,778. In 1915 and 1916 there was a large credit under item 49, being reimbursement to the government for money advanced to American citizens to assist them in returning from Europe at the outbreak of the European war. In 1915 this reimbursement was \$1,774,465 and in 1916 it was \$951,285, or a total of \$2,725,750, being 85 per cent of the amount disbursed for this purpose in 1915. The totals of credits for group I average \$28,065,624 per year for the ten-year period. As stated above, these credits have been deducted from the gross expenditures of the departments and bureaus to get the net expenses, but are given here separately in order to show what the earnings and credits are and how they have varied from year to year.

In group II, the credits for Agriculture are almost entirely those of the Forest Service for the sale of timber and the use of grazing lands and for other receipts from the national forests. There are also included small receipts from the sale of products of experiment stations of item 53.

Interior credits are mainly sales of maps and other government property by the Geological Survey and fees collected by the Bureau of Mines. Commerce includes sales of seal-skins and fox skins by the Bureau of Fisheries and fees of the Bureau of Standards. The largest item in the miscellaneous group (73-80) is the fees of the Library of Congress for the copyright office and the sales of index cards. The total earnings of group II average \$3,415,755 per year for the ten-year period.

Expenditures of 1920

We have seen that the increase of net expenses of the three civil groups taken together during the three war years was only 5 per cent over the average of the seven years of the pre-war period, groups I and II being greater by 26 and 33 per cent respectively, but group III considerably less. In 1920, however, expenditures increased very greatly, group I being 128 per cent greater than in pre-war years, group II, 118 per cent greater and group III, almost exactly the same, the three groups taken together increasing 75 per cent. Group IV, however, was five and a quarter times as great in 1920 as the pre-war average, (which is an increase of 425 per cent) and group V increased 100 per cent. Group VI can not be compared with the pre-war period, inasmuch as its activities did not exist before the war, but adding the three military groups together and comparing with the pre-war expenditures we find them to be \$3,312,849,587 as against \$422,515,824 before the war, an increase of 684 per cent. Group VII, interest on the public debt, less interest received, and less discount on bonds purchased in 1920, was \$929,131,128 as against \$23,605,213 before the war, the former being nearly 40 times the latter figure. Revenues from taxation increased nearly nine times.

Comparing 1920 with the average of the three war years, group I is 80 per cent greater, group II is 70 per cent greater and group III is 42 per cent greater.

The principal causes of increase in group I are (1) the great expansion in certain of the activities of the government due to the war, such as the Internal Revenue Service, and State Department, (2) the large deficit in the Post Office Department in 1920 caused by increased compensations to em-

ployes and the railroads, as contrasted with a considerable surplus during the war years, (3) the bonus paid to civil employes in other departments to partially compensate for the increased cost of living, and which during the war years had been on the average very small, (4) the increased cost of all kinds of materials and supplies and of transportation, and (5) the normal growth of the government and the recovery from the abnormal restriction of growth in some cases during the war years.

The excess of 1920 for group I over the average of the war years, is \$99,601,521. Taking the largest items first, the difference for the Post Office Department is \$46,182,746 and for the Treasury Department \$32,363,049, together amounting to over 78 millions, leaving only 21 millions to be accounted for in all the other departments. In item 12 of the Treasury the difference of 10 million dollars is largely explained by increase of compensation to employes to cover the increased cost of living, this item covering all the employes of the Treasury Department except in the Bureau of War Risk Insurance. The number of employes of the Treasury has increased very greatly and the increase of compensation for 1920 was \$240 instead of \$120 as it had been in 1919. The total amount paid for this purpose was about seven times the average of the three war years. The Internal Revenue Service increased greatly in 1920 over 1919, and of course still more over the average of 1917-1919, amounting to 15.5 millions over the latter. Other activities of the Treasury also increased, and the difference of 32 millions is made up as shown in table 14.

The 21 millions increase in other departments is made up of 3.7 millions in Legislative, 0.3 in Executive, 3.3 in State, 2.3 in Interior, 2.8 in Agriculture, 5.3 in Commerce (more than half o

which was in the Bureau of Light Houses)—1.1 in Labor (that is, the net expenses of the Department of Labor were reduced owing to increased earnings from increased immigration), 2.1 in Justice, 2.6 in Judicial,—0.3 in miscellaneous (that is, the miscellaneous group was slightly less because of the large earnings of the Panama Canal in 1920).

The increased compensation in the Post Office, and in all other departments, and the greatly increased force required to collect the war revenue, together with the fact that compensation and development had been kept down abnormally during the war, account for the greater part of the excess in 1920 over the average of the war years. In a later section it will be shown that the number of employes in the civil departments had increased in 1920 over 1916 by only a very small per cent outside of the Treasury and State Departments, and hence this increase was not due to an excess of employes in those departments.

In group II the excess of 1920 over the average of the three war years was 25.2 millions. Of this amount 7.4 millions is in Agriculture, 13.0 millions in Commerce, 3.3 millions in miscellaneous, the Interior Department being unchanged. The principal increases in Agriculture were 1.7 millions in the Forest Service (which was abnormally small during the war on account of very large revenues from timber cut), 1.0 million in Animal Industry, 2.4 millions in Coöperative Agricultural Extension Work, and 0.4 million each in Plant Industry, Markets and Entomology. In Commerce 12.5 millions of the total increase of 13.0 millions was due to the census of 1920. The Coast Survey and the Bureau of Standards had increases of 0.7 and 0.5 millions respectively, and the Bureau of Fisheries a decrease of 0.7, due to very

large earnings from the sale of seal skins and other furs in 1920.

The Public Health Service increased 1.5 millions, the Federal Board for Vocational Education increased 1.3 millions over the average of the three war years (but only 0.8 over the average of the two years when it was operating), and other services had small increases, although the Bureau of Labor Statistics and the Children's Bureau were both less than the average of the three war years.

In group III there were large increases in some items and decreases in others, the total being 25.2 millions more than the average during the war. For Rivers and Harbors, the increase was 17.8 millions, and highway construction was 23.5 millions more. Panama Canal construction was 4.8 millions less, public buildings 4.5 millions less, Alaska Railway 2.5 millions less, and Reclamation Service 4.3 millions less.

It is scarcely worth while to compare the expenditures of the military departments in 1920 with the war period, the conditions being so different, and we have already compared them with the pre-war period.

If one recalls the enormous increase in prices of commodities and the increased cost of doing business outside the government service during 1919 and 1920 with the increases shown above for all the civil activities of the government, and recalls that a large amount of work has been added to the latter which in a strict accounting study would have been charged to the military departments (such as the cost of collecting the revenue to support the latter and pay for the war) one must admit that these increases are very moderate indeed. So far from justifying the charges of extravagance sometimes made, they show either economy

or curtailment of service, or both.⁵ This is not saying that there is no extravagance, or that there is no lack of efficiency. If in the large sum paid for the increase of compensation of employes there had been included some-

⁵As an instance of economy it may be mentioned that government employes (civil) are allowed \$4.00 per day for subsistence when traveling, or actual expenses not to exceed \$5.00 per day, the same as was allowed 20 years ago when the cost of living when traveling was scarcely more than half what it is now, and this applies also to the higher officers of the government when on the most important departmental business.

thing for the higher positions in the executive departments of the government, the salaries of which in most cases have been increased very little in twenty years, there would have been fewer losses of able and experienced men and a higher average of administration.⁶ With better management

⁶ The increase of compensation of \$120 per year in 1919 and \$240 in 1920 to cover the increased cost of living applied to positions of \$2,500 per year and less; no allowance of the kind was made for the positions at higher salaries, in which the turnover has been very great.

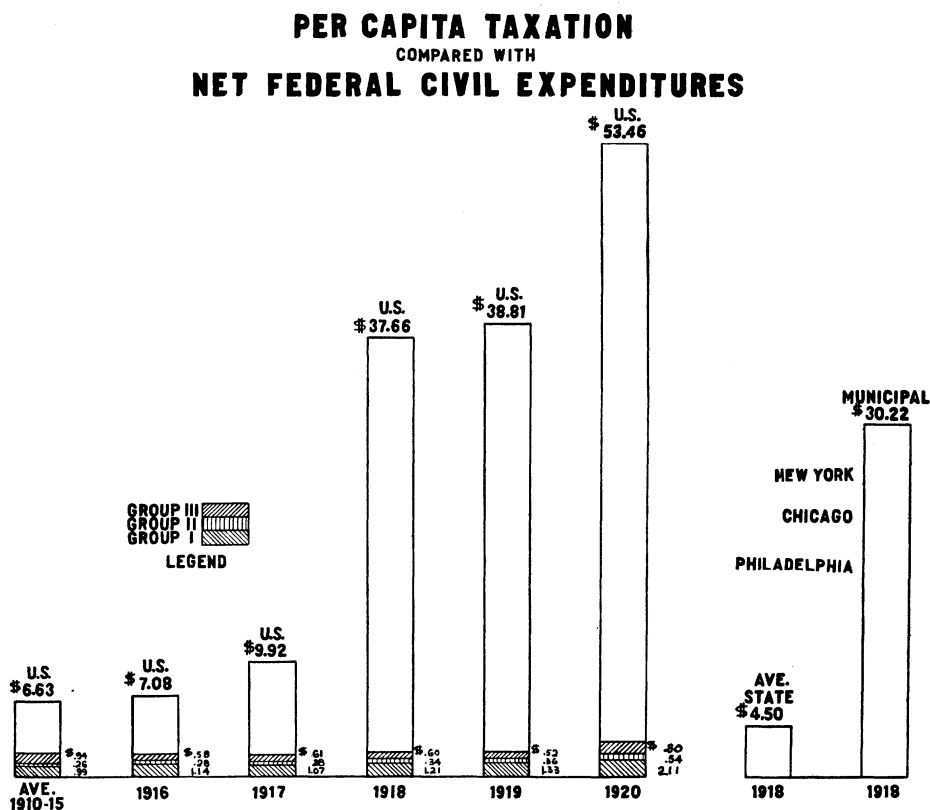


FIGURE 16

In this figure the data for per capita taxation and net U. S. expenditures for civil activities during 1910-1920 is represented so as to admit of ready comparison. For the years 1910-1915 only the average of the U. S. taxation and expense data is given, because the data for the individual years do not differ materially from the average. The state and municipal data are given only for the year 1918, but this year is fairly typical of the whole period, as shown in tables 18 and 19.

there would have been better average efficiency, fewer employes to do the same work, better service and lower total costs. It is hoped that this aspect of the problem of economy in the government service may be given the consideration that it deserves.

Per Capita Federal Taxation Compared with State and Municipal Taxation

Figure 16 shows graphically the relation between the net per capita cost to the taxpayer of all the civil activities of the Federal Government,

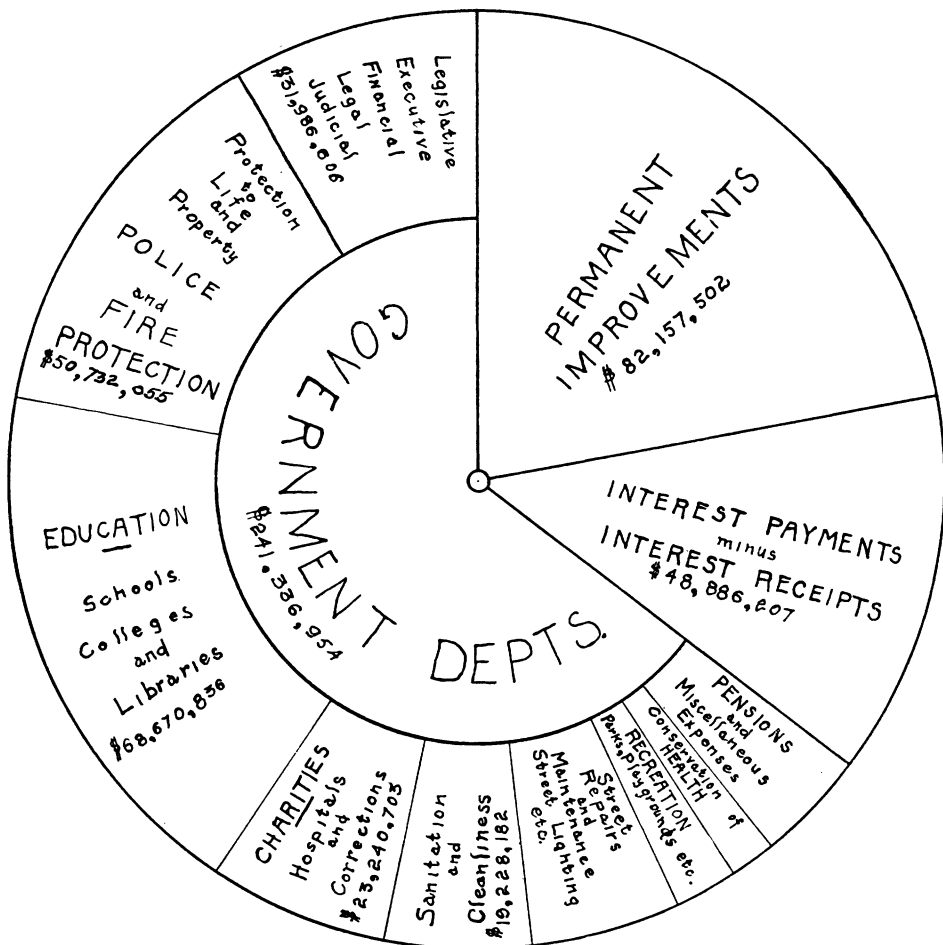


FIGURE 17

Aggregate Disbursements for the Municipal Governments of New York, Chicago and Philadelphia, for 1918, \$372,380,663. For (1) governmental purposes including police and fire protection, (2) education, health and recreation, (3) permanent improvements, (4) interest on municipal debt less interest received. These three cities have a combined population of about one-tenth of the entire United States.

and the total per capita federal, state and municipal taxation. Thus, in the six pre-war years 1910-15 the average of federal taxes collected was \$6.63 per capita, of which \$2.19, or 33 per cent, was expended for the three civil groups, and the remainder for Army and Navy, pensions and interest. In

1916, the total was \$7.08 per capita, the net expenses of the three civil groups amounting to \$2.00 or 28 per cent. In 1917, the total was \$9.92 per capita and the net expenses of the three civil groups amounted to \$1.96 per capita, or 20 per cent. In 1918, the total was \$37.66, the three civil

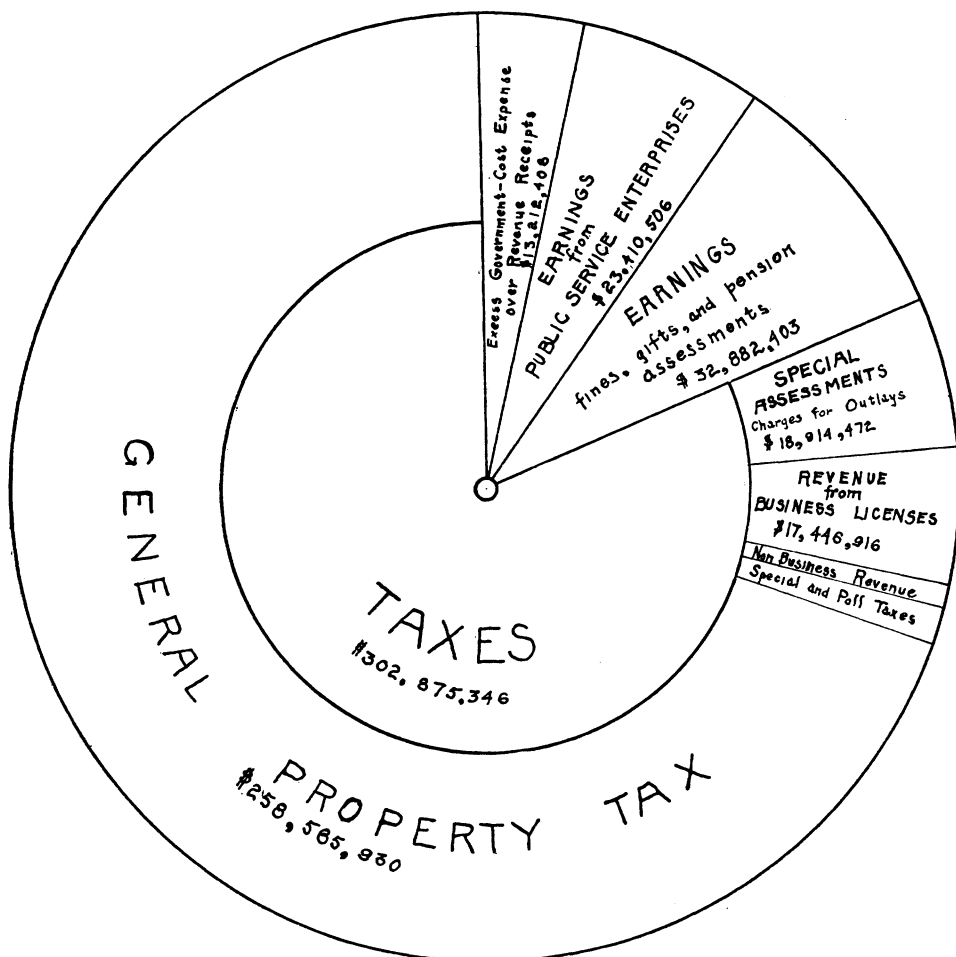


FIGURE 18

Aggregate Revenues for the Municipal Governments of New York, Chicago and Philadelphia, for 1918. The total of revenues from taxation, including business licenses and special taxes, amounted to \$302,875,346 or \$30.22 per capita of the combined population. Earnings from various sources and borrowed money to cover the net deficit amounted to \$6.94 per capita. Compare with the net per capita federal revenues from taxation.

groups expending \$2.15 per capita or 5.7 per cent. In 1919 the total was \$38.81, the three civil groups expended \$2.21 per capita, or 5.7 per cent. In 1920 the total was \$53.46, and the three civil groups expended \$3.45 per capita or 6.5 per cent. The total expenditures of course differed from these figures for revenue from taxation, as shown in table 1. The purpose in this exhibit is to call attention to the fact that the civil expenses absorb a relatively small part of the total revenue derived from taxation, especially in recent years, and that they increased very little until 1920. Attention should be called to the fact, shown in the figure, that the expenses of groups I and II did increase appreciably during the ten-year period, 1910-19, but that the construction work of group III was considerably reduced in the later years of this period, so that the total remained nearly constant.

The average taxation throughout the forty-eight states of the union in 1918 for state governmental purposes amounted to \$4.50 per capita.

The Bureau of the Census has made an investigation of the costs of municipal government in a large number of the cities of the country, having a population of 30,000 or more, and of taxation and other revenues of such cities.⁷ The results have been classified and tabulated in such a way as to facilitate study and comparison, and it is instructive to compare them with the expenses of the various agencies of the Federal Government. The three largest cities of the country, New York, Chicago and Philadelphia have been taken for illustration. Their combined population in 1918 was slightly over ten millions, or one-tenth of the population of the entire country. Their total expenses for various purposes for the

year 1918 have been added together and plotted in figure 17. The total disbursements of \$372,380,663 are expended (1) for current governmental purposes, (2) for education, public health and recreation, (3) for permanent improvements (new construction), and (4) for interest on city debts. The total amounts to \$37.16 per capita of the population, of which \$6.94 per capita consists of earnings from public service enterprises, fines, gifts and pension assessments and borrowed money, and \$30.22 per capita is collected from taxes (Fig. 18). This is less than the federal per capita tax in 1918, but more than ten times as much as federal per capita expenditures for the three civil groups. The amount spent for education, schools, colleges and libraries, in these three cities was nearly double that which was spent by the Federal Government in 1918 for research, education and public health work (group II), whereas the amount spent for all purposes was more than was spent for all the civil groups of the entire Federal Government.

For all cities of more than 30,000 population the average per capita of taxes collected in 1918 for municipal purposes is \$25.14, and the average of expenditures \$26.55.

Table 18 gives governmental revenue receipts and cost payments of municipalities of over 30,000 population, together with their total population for each year for 1910-18 inclusive, except for 1914 for which the data are lacking. The second half of the table gives the net expenses and earnings and the net revenues. Expenses are in three groups, (1) general current expenses, (2) interest payments less interest received, (3) outlays for permanent improvements. The total expense and revenues for each year divided by the population give the per capita cost and per capita tax revenue.

⁷ *Financial Statistics of Cities*—1918. Bureau of Census, Washington, 1919.

The former was remarkably constant during this eight-year period; the latter increased gradually from \$21.64 to \$25.14.

Table 19 gives the revenue receipts and governmental cost payments for all the state governments of the country for the five years 1915-19 inclusive, together with their population and per capita expense and revenue. It will be noticed that interest receipts exceeded interest payments, so that the item of interest appears under earnings instead of expense. The net per capita expenses varied between \$4.00 and \$4.73; the per capita tax revenues increased in this period from \$3.74 to \$5.06.

Review of the Functions of Federal and State Governments

Referring back now to the functions of government as outlined at the beginning, let us consider to what extent the Federal Government is doing the things that would naturally fall to it in the division of functions between federal and state activity, including in the latter the activities of municipalities, which are creatures of the state.

(a) Under protective functions (1) protection from invasion or encroachment from without is mainly a federal function and has always been performed adequately in this country and at great cost. (2) Protection of life, property and reputation is largely a function of the separate states, but many agencies of the government are concerned with safety and the protection of life and property. The Bureau of Lighthouses, Bureau of Navigation, Steamboat Inspection Service, Division of Safety of the Interstate Commerce Commission, the life saving service of the Coast Guard, the safety divisions of the Bureau of Mines and the Bureau of Standards, the Department of Justice, and other branches of the government

carry on work of this kind of great practical value, although in some cases it is small in comparison with what needs to be done. It is believed that such work amply justifies itself and should be developed and made even more effective. (3) Protection against the spread of disease is divided between the Federal Government and the states, and in recent years the Public Health Service and the Agricultural Department have been given larger means and have done more work of this kind than before, although in the aggregate the states do the greater portion of what is done. The need and the opportunity are so great and the interests at stake so vast that a few cents per capita of the country's population per year seem no adequate measure of what ought to be done by the Federal Government. It would appear to be a very proper and profitable investment for the Federal Government to increase substantially its research and coöperation with state and private medical agencies, in order to give greater returns in service to the people for taxes collected, and to promote the well-being of the nation.

(b) Under the commercial functions of government, the most conspicuous examples of such activities carried on by the Federal Government are the Post Office, Shipping Board, Panama Canal, Patent Office, and Reclamation Service. The Alaskan Railway is not yet completed, while the War Risk Insurance is not primarily commercial, although it is perhaps midway between commercial insurance and a pension system. Aside from the activities of the Shipping Board, which is comparatively new and grew out of the necessities of the war, all these commercial activities have been substantially self-supporting and have undoubtedly rendered a very valuable public service.

The Post Office is one of the most

indispensable and successful of federal activities, and nobody would suggest that it be handled by a private company; the Panama Canal is a great engineering achievement and has so far met all commercial expectations; the Patent Office is operated at a profit, but is far from satisfactory from the standpoint of service, and is asking to be strengthened and made more effective as it deserves to be; the Reclamation Service is doing a great work and while ultimately self-supporting is not as yet quite on a commercial basis. The Federal Government has much to be proud of in connection with this group of services, and while doubtless many improvements in management are possible, it is believed that a careful study would justify larger rather than smaller outlays with a view to better and more adequate service.

The states and cities carry on many commercial enterprises, including various public utilities, and with varying degrees of success.

(c) Under the developmental functions of government there are five sub-headings. (1) Public education is carried on mainly by the states, municipalities and private agencies, the Federal Government assuming comparatively small responsibility and incurring small expense. There is great need for research in education and for coöperation among all the agencies concerned, and many believe that the Federal Government should do a great deal more in this direction than it does. (2) Public recreation is aided by the Federal Government through the maintenance of national parks, which have also an educational value; this function, however, is exercised almost wholly by state and local governments. (3) "Providing those legal and administrative conditions in which private business will be conducted in a just and equitable manner," covers a wide

range of governmental activity, both federal and state. The supervision of banking by the Treasury, the work of the Federal Trade Commission, regulations regarding interstate commerce, some of the activities of the Post Office Department and the Department of Justice, are all included under this head. Generally the states exercise local jurisdiction, the Federal Government concerning itself with interstate and foreign business. (4) Investigation and control of public utilities is very largely the function of the separate states, except that for the railroads of the country it has come to be largely a federal function. The Federal Government coöperates to some extent with the states in studying the many problems of the other public utilities. When private companies render a public service for which the public pays the entire cost plus a profit to the company, the public should have suitable standards for judging the quality of the service and should know whether the business is conducted efficiently. Otherwise there is no protection to the public and great probability that in many cases it will not be so conducted. The problems are much the same in all the states and cities, and can be studied coöperatively to great advantage. The commercial companies have their associations for mutual benefit and coöperation, and the states have their readiest means of coöperation with one another through the Federal Government. This is one of the greatest opportunities for usefulness to the people, and ought to be improved far more than it ever has been. (5) Developing the resources and wealth of the state and coöperating with the industries in research and standardization is one of the most important functions of the Federal Government. Partly for the purpose of developing wealth which can be

taxed, or replacing by constructive service the wealth which is absorbed by the government in taxes; and partly for the purpose of benefiting society and strengthening the state, this work should be developed and extended. It is like good seed to a farmer, which yields large returns on its extra cost, and without which the best success is impossible.

It thus appears that these functions of the Federal Government which are developmental as distinguished from governmental are susceptible of great extension, the idea not of control, but of service, being emphasized. Herein lies the possibility of notable advances in popular government without conflicting with the rights or responsibilities of states or municipalities or with private initiative.

The Employment Policy of the Government

How to increase efficiency in the government service is an important question, and nobody is more interested in it than those in the service. The problem is not merely how to reduce expenses, or how to get a cheaper government; but rather how to get the maximum of service and the best government possible for a given expenditure.

The United States Government may be likened to a great business organization of which Congress is the Board of Directors and the taxpayers are the stockholders. It is a great coöperative undertaking for the benefit of all the citizens of the United States, and it suffers some of the difficulties of coöperative undertakings. The various departments, bureaus, and other branches of the government are managed by secretaries, directors, division chiefs and various assistants, the chief executive officer over all being the President. There are altogether several thousand men in responsible administrative posi-

tions in the government's complex organization who are concerned with problems of administration and business management, and who at the present time are specially interested in the improvement of the employment policy of the government. There are several hundred thousand employes of the government who are not only interested in this question, but vitally concerned, and are calling the attention of Congress and the public to the fact that the government's employment policy needs revision and bringing up to date.

In the government service, even more than in private business, administration should be reasonable and just, and administrators competent and efficient. Officers should be held responsible for results and should be given sufficient authority and means to work with, so that there can be no excuse for failure or for inefficiency. The question, therefore, is:—What changes in the employment policy of the government should be made in order that the government service may be put on a very high plane, that it shall offer so attractive a career that able men and women may be secured and the best retained in the service, and that it shall rank with the very best organizations anywhere in the integrity, ability, and efficiency with which it is conducted? There is very much in the government service now to be proud of, more than many people think. But there are serious handicaps to efficiency which can be removed, and the government's haphazard employment policy is one of them.

The administration of the Civil Service on the merit system, free from patronage and politics, has been steadily extended until it covers a very large part of the Federal Government. In this extension the Civil Service

TABLE 15

MISCELLANEOUS EARNINGS, FEES AND CREDITS FOR SALE OF PROPERTY
CIVIL ACTIVITIES OF U. S. GOVERNMENT

FISCAL YEARS 1910-1919

Group I—Primary Governmental Functions

Fiscal Year	Legislative	State	Treasury— Customs	Treasury— Miscellaneous	Interior— Patent Office
1910.....	\$185,424	\$1,662,659	\$737,866	\$519,437	\$2,019,541
1911.....	182,576	1,666,069	3,603,551	516,778	1,976,064
1912.....	235,505	1,729,243	1,629,683	513,865	2,076,400
1913.....	354,837	1,845,006	1,826,616	634,444	2,077,142
1914.....	231,065	1,987,829	1,232,515	690,709	2,168,516
1915.....	271,712	1,512,595	998,434	651,247	2,265,486
1916.....	479,383	1,524,972	1,280,230	1,044,688	2,329,510
1917.....	601,658	1,561,781	1,176,346	1,752,632	2,315,647
1918.....	378,779	1,336,127	973,496	3,201,909	2,100,947
1919.....	360,608	1,311,386	1,640,181	4,193,640	2,022,771
Total	\$3,281,547	\$16,137,667	\$15,098,918	\$13,719,349	\$21,352,024
Fiscal Year	Interior— Indian Service	Interior— Miscellaneous	Agriculture	Commerce	Labor
1910.....	\$91,392	\$2,640,218	\$15,335	\$224,611	\$4,488,095
1911.....	5,839,828	2,110,604	21,124	230,734	4,049,241
1912.....	892,732	1,727,240	22,405	221,815	3,609,149
1913.....	586,062	2,707,322	22,326	238,527	5,207,062
1914.....	235,127	2,398,349	35,604	672,894	5,673,566
1915.....	718,474	2,157,838	68,247	252,907	1,797,125
1916.....	191,674	2,359,466	78,913	306,038	1,213,829
1917.....	338,558	2,179,552	104,098	262,226	1,326,942
1918.....	338,670	1,806,703	101,754	224,300	1,606,871
1919.....	677,211	1,777,352	328,291	362,951	1,589,980
Total	\$9,909,728	\$21,864,644	\$798,097	\$2,997,003	\$30,561,860
Fiscal Year	Judicial	District of Columbia	Panama Canal Maintenance	Miscellaneous Commissions, etc.	Total Group I
1910.....	\$999,310	\$7,498,953	.....	\$88,980	\$21,172,238
1911.....	1,048,008	7,679,526	.....	207,382	29,232,773
1912.....	1,615,348	8,644,468	.....	159,797	23,079,276
1913.....	1,385,125	9,117,612	.....	152,816	26,159,972
1914.....	1,356,546	9,003,290	.....	148,935	25,837,447
1915.....	1,110,967	9,790,474	\$3,900,423	2,321,833	27,819,280
1916.....	1,221,538	10,176,741	2,869,995	1,794,297	26,872,754
1917.....	1,105,837	10,170,424	6,150,669	1,045,373	30,109,738
1918.....	1,503,731	10,960,823	6,347,994	1,627,931	32,541,865
1919.....	2,041,858	11,960,118	6,777,047	2,751,479	37,830,893
Total	\$13,388,268	\$95,002,434	\$26,046,128	\$10,298,823	\$280,656,236

TABLE 15—(Continued)

Group II—Research, Education, Development

Fiscal Year	Agriculture—II	Interior—II	Commerce—II	Miscellaneous Education—Welfare	Total Group II
1910.....	\$2,127,130	\$5,069	\$174,551	\$181,706	\$2,488,455
1911.....	2,034,535	22,563	430,233	200,151	2,687,532
1912.....	2,174,342	33,414	428,633	203,077	2,839,466
1913.....	2,485,730	26,764	182,163	254,691	2,949,349
1914.....	2,511,568	38,505	106,525	241,550	2,898,148
1915.....	2,554,092	34,200	13,259	281,758	2,883,309
1916.....	2,951,092	39,678	80,824	337,732	3,409,326
1917.....	3,629,000	41,049	195,610	338,171	4,203,830
1918.....	3,675,756	15,332	105,815	351,811	4,148,714
1919.....	5,011,211	18,168	309,803	310,240	5,649,422
Total.....	\$29,154,456	\$274,742	\$2,027,466	\$2,700,887	\$34,157,551

Commission has been an effective agency, in spite of a serious handicap arising from an insufficient personnel. The commission has ample authority as well as the good-will of administrators and the moral support of the public, and has done a work of immense importance. Nevertheless, it can not be denied that there are serious defects in the Civil Service. The standard of the personnel in many cases is not what it should be, the quantity and quality of work done is frequently unsatisfactory, experienced and competent men and women leave the service in large numbers, and their places are taken by others, on the average less experienced and less competent. Owing to an inadequate and irrational salary scale, many branches of the government service are so unremunerative and unattractive that their administrative officers have much difficulty in keeping positions filled. Under such circumstances it is impossible to maintain proper discipline or a high standard of efficiency, and the consequences of a lowered morale are

plainly evident. The situation is far more serious than it was two years ago when Congress appointed a special commission to study and report upon it.

LEGAL DIFFICULTIES

The merit system presupposes an honest, unbiased, and competent administration of the personnel; appointments without favor, promotions when earned, security of tenure, opportunity to make good, recognition of work well done. The government should be a just and reasonable employer, if not indeed a model employer, and the administrative officers of the government should not only be authorized and required to deal justly and equitably by the employees under their supervision, but they should be empowered to do so. In general, this is far from being realized, and the greatest handicap to good administration is not in the faults and frailties of administrative officers (serious as they may be in some cases) but in the laws and limitations imposed upon the administrators, which tie their hands and

make good administration exceedingly difficult; and in the lack of adequate personnel in the Civil Service Commission, which makes it impossible for it to coöperate with administrators as effectively as it should, or to exercise the supervision over appointments and promotions which the law contemplate and which administrators would welcome.

The most serious of these legal difficulties are the following:

(1) The system of statutory positions with inflexible and generally inadequate salaries, which often make appointments and promotions difficult or impossible.

(2) Unequal salaries in different branches of the service for a given kind of work and degree of responsibility.

(3) The legal prohibition of transfer and promotion from a position in one department to a lump-fund position in another at a higher salary, no matter how much such promotion is merited or how strongly it is

recommended by the administrative officers concerned.

(4) The legal restriction requiring three years' service before transfer from one department to another in Washington.

(5) The apportionment system which often makes it impossible to appoint the most competent eligibles, and sometimes rules out all the applicants from several states.

(6) The entire lack, until very recently, of a retirement system for aged or disabled employes, which made it necessary to retain thousands who under other conditions would have been retired to the advantage of the service.

STANDARDIZED CIVIL SERVICE

The need for improvement has long been recognized and the commission appointed by Congress made a thorough study of all phases of the situation and a very complete report, and drafted a bill embodying its recom-

TABLE 16

AVERAGE ANNUAL EXPENDITURES AND CREDITS OF DIPLOMATIC AND CONSULAR SERVICE OF STATE
DEPARTMENT—FISCAL YEARS 1910-1920

For 7 Pre-war Years, 3 War Years, and 1920

	Average 1910-1916	Average 1917-1919	1920
<i>Expenditures</i>			
Salaries of Ambassadors and Ministers	\$517,796	\$469,365	\$491,978
Salaries of Secretaries, Clerks, Interpreters	261,848	514,002	897,482
Salaries of Consular Service	1,063,909	1,122,377	1,303,117
Salaries of Clerks, Assistants, Marshalls, Interpreters	385,312	713,836	1,109,430
Post Allowances to Embassies and Consulates . . . . .	.....	359,767	572,404
Contingent Expenses, Emergencies and Transportation	947,778	2,044,720	4,119,161
Various International Bureaus, Institutes and Commissions	774,517	675,956	643,145
Total Expenditures	\$3,951,160	\$5,900,023	\$9,136,717
<i>Credit</i>			
Consular Fees, Sale of Property, etc.	\$1,666,979	\$1,310,456	\$1,885,602
Net Expenditures	\$2,284,181	\$4,589,567	\$7,251,115

TABLE 18

GOVERNMENTAL REVENUE RECEIPTS AND COST PAYMENTS OF U. S. MUNICIPALITIES OF OVER 30,000 POPULATION

	1910	1911	1912	1913	1915	1916	1917	1918
<i>Total Population</i>	27,316,407	28,559,142	29,320,579	30,194,677	31,168,150	32,267,415	33,259,769	34,326,669
<i>Revenue Receipts</i>								
Taxes—Property, Poll, Business License, etc.	\$524,879,619	\$552,798,570	\$582,606,121	\$596,708,796	\$641,972,943	\$695,106,895	\$742,320,878	\$790,577,487
Special Assessments—for Outlays	66,395,107	68,509,773	71,685,270	72,476,119	79,890,321	74,009,766	83,195,596	72,673,785
Grants, Fines, Gifts, Pension Assessments . . .	37,242,784	41,496,176	43,039,246	43,279,349	44,344,280	45,835,581	48,778,549	52,240,559
Earnings of General Departments	15,200,254	17,270,578	20,956,524	21,187,056	22,547,201	24,485,840	26,580,328	29,526,180
Highway Privileges		11,029,567	12,327,793	12,572,643	15,069,314	13,898,573	14,037,647	15,796,393
Rents	8,904,880	5,662,807	8,987,716	9,035,519	11,286,954	10,863,230	11,986,302	12,538,024
Interest on Amortization Investments	24,122,329	23,536,087	24,259,721	24,445,032	28,715,919	30,713,181	32,479,059	34,247,826
Earnings of Public Service Enterprises	83,197,472	85,416,575	85,174,713	86,572,596	96,558,379	99,797,175	106,158,783	116,494,645
Total Receipts	\$759,942,445	\$805,720,133	\$849,037,104	\$866,277,110	\$940,385,311	\$994,710,241	\$1,065,537,142	\$1,124,094,899
<i>Expense Payments</i>								
Expenses of General Departments:								
General Government: Legislative, Executive, Legal, etc.	\$53,402,487	\$55,734,445	\$59,717,194	\$60,510,314	\$65,456,987	\$67,663,976	\$72,489,108	\$73,447,354
Protection: Police, Fire Department, Inspection	111,932,648	110,822,753	116,839,112	118,328,740	127,510,291	132,160,463	135,634,803	145,624,216
Conservation of Health	9,059,173	8,916,084	10,354,178	10,578,763	12,635,565	13,922,389	15,945,361	17,596,943
Sanitation	35,271,283	38,652,454	41,583,433	42,353,938	45,836,906	47,374,904	48,506,528	54,223,701
Highways: Street Repair, Maintenance and Lighting	54,778,717	55,879,142	58,027,116	59,137,773	65,509,383	63,864,106	66,812,268	70,764,177
Charities: Hospitals, Corrections	29,621,797	31,321,703	33,231,282	33,608,341	39,297,505	43,274,019	45,341,759	50,886,090
Education: Schools, Libraries	133,533,813	141,455,032	153,612,942	157,419,877	181,590,445	193,823,865	204,591,462	225,211,252
Recreation: Parks, Playgrounds	16,108,808	17,617,447	18,774,869	19,184,453	21,388,597	21,637,097	22,206,739	24,190,527
Miscellaneous: Pensions, etc.	5,511,063	1,808,306	1,826,714	6,878,620	2,284,730	2,459,547	3,934,910	7,041,611
General		12,450,294	14,576,208	14,665,627	16,695,777	16,879,710	18,882,281	21,174,412
Total General Departments	\$449,209,789	\$474,657,660	\$508,543,048	\$522,666,446	\$578,206,186	\$603,060,076	\$634,345,219	\$690,160,283
Interest on Indebtedness	92,847,248	101,492,215	107,816,353	109,684,123	128,526,868	133,046,560	140,520,935	148,997,629
Outlays: Construction, Permanent Improvements	279,145,899	316,079,329	303,481,467	310,823,002	329,585,561	287,558,668	286,529,990	278,363,437
Public Service Enterprises	34,386,256	36,106,194	39,392,393	40,968,118	43,822,511	44,636,007	46,625,421	55,174,480
Total Expense Payments	\$855,599,192	\$928,335,398	\$959,233,261	\$984,141,689	\$1,080,141,126	\$1,068,301,311	\$1,108,021,565	\$1,172,695,829

CONDENSED STATEMENT OF EXPENSES, EARNINGS, AND TAX REVENUE

<i>Expenses</i>								
Expenses of General Departments	\$449,219,789	\$474,657,660	\$508,543,048	\$522,666,446	\$578,206,186	\$603,060,076	\$634,345,219	\$690,160,283
Net Interest—Payments less Receipts	68,724,919	77,956,128	83,556,632	85,239,091	99,810,949	102,333,379	108,041,876	114,749,803
Outlays: New Construction, etc.	279,145,899	316,079,329	303,481,467	310,823,002	329,585,561	287,558,668	286,529,990	278,363,437
Total Cost Expense	\$797,090,607	\$868,693,117	\$895,581,147	\$918,728,539	\$1,007,602,696	\$992,952,123	\$1,028,917,085	\$1,083,273,523
<i>Earnings</i>								
General Earnings, Fees, Fines, Rents, etc. . . .	61,347,918	75,459,128	85,311,279	86,074,567	93,247,749	95,083,224	101,382,826	110,101,156
Earnings from Public Service Enterprises, less Expenses	48,811,216	49,310,381	45,782,320	45,604,478	52,735,868	55,161,168	59,533,362	61,320,165
Total Earnings	\$110,159,134	\$124,769,509	\$131,093,599	\$131,679,045	\$145,983,617	\$150,244,392	\$160,916,188	\$171,421,321
Net Expense—Cost Expense less Earnings	\$686,931,473	\$743,923,608	\$764,487,548	\$787,049,494	\$861,619,079	\$842,707,731	\$868,000,897	\$911,852,202
<i>Tax Revenue</i>								
Net Taxes	\$524,879,619	\$552,798,570	\$582,606,121	\$596,708,796	\$641,972,943	\$695,106,895	\$742,320,878	\$790,577,487
Special Assessments	66,395,107	68,509,773	71,685,270	72,476,119	79,890,321	74,009,766	83,195,596	72,673,785
Total Tax Revenue	\$591,274,726	\$621,308,343	\$654,291,391	\$669,184,915	\$721,863,264	\$769,116,661	\$825,516,474	\$863,251,272
Deficit—Net Expense less Tax Revenue*	95,656,747	122,615,265	110,196,157	117,864,579	139,755,815	73,591,070	42,484,423	48,600,930
Total	\$686,931,473	\$743,923,608	\$764,487,548	\$787,049,494	\$861,619,079	\$842,707,731	\$868,000,897	\$911,852,202
Per Capita Net Expense	\$25.13	\$26.04	\$26.06	\$26.05	\$27.63	\$26.12	\$26.10	\$26.55
Per Capita Tax Revenue	\$21.64	\$21.76	\$22.32	\$22.16	\$23.16	\$23.84	\$24.82	\$25.14

* The deficit is represented by the net increase of indebtedness plus or minus the change in cash balances.

Data from Bureau of Census, Financial Statistics of Cities. No data available for 1914.

The data for 1919 became available too late to be inserted in this table. The principal items for that year are: Cost Expense, \$1,128,816,185; Earnings, \$176,228,516; Net Expense, \$952,587,669; Total Tax Revenue, \$943,588,548; Per Capita Net Expense, \$27.48; Per Capita Tax Revenue, \$27.22.

TABLE 17
AVERAGE ANNUAL EXPENDITURES AND CREDITS OF U. S. JUDICIARY
FISCAL YEARS 1910-1920
For 7 Pre-war Years, 3 War Years, and 1920

	Average 1910-1916	Average 1917-1919	1920
<i>Expenditures</i>			
Salaries of Judges—Supreme, Circuit and District Courts . . .	\$1,084,467	\$1,228,806	\$1,450,514
Salaries, Fees and Expenses of Marshalls	1,479,496	1,673,497	2,216,196
Salaries and Expenses of District Attorneys, Assistants, etc. . .	1,112,261	1,174,766	1,848,602
Fees of Clerks and Commissioners	405,944	490,629	1,358,046
Fees of Jurors	1,050,530	1,113,136	1,229,347
Fees of Witnesses	1,059,830	1,092,759	1,176,202
Pay of Bailiffs and Miscellaneous Expenses of U. S. Courts . .	855,050	751,930	911,349
Support of Prisoners—U. S. Courts	572,267	701,034	1,431,778
U. S. Penitentiaries	620,594	1,095,303	2,141,157
Courts of Customs, Claims, Supplies, Rent, etc.	418,058	356,355	363,150
Total Expenditures	\$8,658,497	\$9,678,215	\$14,126,341
<i>Credits</i>			
Judicial Fees and Costs	\$234,508	\$213,030	\$628,412
Judicial Fines, Penalties, and Forfeitures	721,160	1,028,310	2,449,533
Alaska Fund and Game Licenses	236,355	255,252	213,122
Unclaimed Money, Sale of Property, etc.	56,097	53,883	45,300
Total Credits	\$1,248,120	\$1,550,475	\$3,336,367
Total Net Expenditures	\$7,410,377	\$8,127,740	\$10,789,974

mentations.⁸ More recently a second bill has been introduced by Chairman Lehlbach of the Committee on Civil Service Reform of the House, based upon the commission's report but with some important modifications.

If the proposed classification of the Civil Service is effected, so that there will be a standardized system of positions and titles, with systematic specifications of qualifications and duties, and salaries that are uniform through-

⁸ This bill, known as the Jones bill, was introduced in the Senate by the Chairman of the Commission in March, 1920. The "Report of the Congressional Joint Commission on Reclassification of Salaries" (*House Document* 686, 66th Congress, 2d Session) was presented on March 12, 1920.

out the service for comparable duties and responsibilities, then it would be possible to dispense with the present inflexible statutory positions and the unrestricted and unstandardized lump-fund positions and replace both by the new standardized and classified system of positions, which would be defined and authorized by law. This would do away with the first two of the above-named legal limitations, and remove the reason for the third and fourth, which could then be repealed.

It is probably too much to expect that the fifth difficulty can be entirely removed, although more active recruiting of eligibles from states below their quota would furnish better mate-

TABLE 19
REVENUE RECEIPTS AND GOVERNMENTAL COST PAYMENTS FOR ALL STATE GOVERNMENTS

	1915	1916	1917	1918	1919
<i>Population</i> (estimated as of Jan. 1)		100,052,390	101,809,990	103,423,405	105,082,600
<i>Revenue Receipts</i>					
Taxes—Property, Poll, License, etc.	98,396,733	\$363,968,553	\$409,864,898	\$459,774,245	\$527,819,167
Special Assessments—Charges for Outlays	\$365,543,797	2,868,682	3,289,196	3,097,109	4,408,216
Grants, Fines, Donations, Pension Assessments	2,268,517	15,424,841	12,975,866	15,258,958	19,967,049
Earnings of General Departments	9,410,609	53,844,692	62,531,781	72,543,618	83,203,459
Highway Privileges	50,222,748	20,922	11,042	10,637	68,452
Rents from Investment Properties	1,249	5,225,192	6,223,516	7,422,286	7,643,943
Interest on Investment Funds, etc.	5,963,942	23,156,092	25,394,714	26,931,108	28,800,769
Earnings of Public Service Enterprises	22,105,396	2,437,774	2,033,720	3,267,690	3,306,147
Total Receipts	2,716,339	\$466,946,748	\$522,924,733	\$588,305,651	\$675,217,202
<i>Expense Payments</i>					
Expenses of General Departments:	\$458,232,597				
General Government: Legislative, Executive, Legal, etc.	\$44,508,417	\$47,152,759	\$45,414,183	\$51,395,182	\$52,151,603
Protection to Person and Property	24,294,691	27,811,275	30,297,595	33,218,935	34,102,524
Conservation and Development of Natural Resources	16,558,685	19,399,756	18,998,976	21,633,972	24,359,455
Conservation of Health and Sanitation	9,453,673	9,894,943	11,256,898	12,249,333	14,403,578
Highways—Repair and Maintenance	22,767,766	29,213,892	33,630,777	38,828,799	61,628,466
Charities—Hospitals, Corrections	89,189,400	94,057,827	103,433,762	118,084,025	134,056,498
Education—Schools, Libraries, Colleges	147,164,247	153,825,748	161,292,951	164,452,243	184,492,850
Recreation, Parks, Monuments	878,646	992,820	1,091,387	1,248,094	1,211,967
General—Pensions and Miscellaneous	22,214,569	21,887,223	20,912,903	32,851,140	36,254,200
Total General Departments	\$379,030,094	\$404,236,243	\$426,329,432	\$473,961,723	\$542,661,141
Interest	18,545,955	19,253,566	21,153,061	23,078,847	24,079,806
Outlays—Permanent Construction and Improvements	95,192,799	85,063,206	67,910,847	66,142,964	71,145,432
Public Service Enterprises	2,138,286	1,581,284	2,109,880	2,302,403	2,516,755
Total Expense Payments	\$494,907,084	\$510,134,299	\$517,503,220	\$565,485,937	\$640,403,134

SUMMARY OF NET EXPENSES, EARNINGS, AND TAX REVENUE (OF ALL STATE GOVTS.)

	1915	1916	1917	1918	1919
<i>Expenses</i>					
General Expenses.....	\$379,030,094	\$404,236,243	\$426,329,432	\$473,961,723	\$542,661,141
Outlays.....	95,192,799	85,063,206	67,910,847	66,142,964	71,145,432
Total.....	\$474,222,893	\$489,299,449	\$494,240,279	\$540,104,687	\$613,806,573
<i>Earnings</i>					
General Earnings, Fees, Fines, Rents, etc.....	65,598,548	74,515,647	81,742,205	95,235,499	110,882,903
Earnings of Public Service Enterprises.....	578,103	856,490	523,840	965,287	789,392
Net Interest—Receipts less Payments.....	3,559,441	3,902,526	4,241,653	3,852,261	4,720,963
Total.....	\$69,736,092	\$79,274,663	\$86,507,698	\$100,053,047	\$116,393,258
Net Expense—Expenses less Earnings.....	\$404,486,801	\$410,024,786	\$407,732,581	\$440,051,640	\$497,413,315
<i>Tax Revenue</i>					
Taxes.....	\$365,543,797	\$363,968,553	\$409,864,898	\$459,774,245	\$527,819,167
Special Assessments.....	2,268,517	2,868,682	3,289,196	3,097,109	4,408,216
Total Tax Revenue.....	\$367,812,314	\$366,837,235	\$413,154,094	\$462,871,354	\$532,227,383
Deficit or Surplus—Net Expense less Tax Revenue**.....	36,674,487	43,187,551	—5,421,513*	—22,819,714*	—34,814,068*
Total.....	\$404,486,801	\$410,024,786	\$407,732,581	\$440,051,640	\$497,413,315
Per Capita Net Expense.....	\$4. 11	\$4. 10	\$4. 00	\$4. 25	\$4. 73
Per Capita Tax Revenue.....	\$3. 74	\$3. 67	\$4. 06	\$4. 48	\$5. 06

* Surplus.

** The deficit is represented by the net increase of indebtedness plus or minus the change in cash balances.

Data from Bureau of Census, *Financial Statistics of States*.

rial and so satisfy the apportionment law without lowering the standards of the service as much as otherwise. The tendency of the apportionment system is necessarily to lower the service in Washington, because very often the best men in distant states can not afford to come to Washington at considerable expense, in view of the inadequate salaries paid by the government. The result often is that inferior men who need a job are certified from distant states and are appointed ahead of abler men from nearby states that have their full quota. Active recruiting by representatives of the Civil Service Commission in those more distant states would perhaps go far toward remedying the difficulty, but it would involve some expense.

The last difficulty mentioned, that is, lack of a retirement system, has lately been partially met, although compulsory retirement on \$30 to \$60 per month, according to length of service, is not an attractive proposition in the higher grades of the service, especially when it is learned that the salary deductions (to be credited to the pension fund) are proportional to the salary, but the benefits are not. For example, the deductions for a \$4,800 position are four times as much as for a \$1,200 position, but the retiring allowance is no more than for the latter position.⁹

If, through the adoption of a budget system or otherwise, funds are made available so that adequate salaries can be paid and promotions can be made systematically and without undue delay, and work can be planned ahead and carried out consecutively by those

who plan and begin it and not be interrupted frequently by a changing personnel, the most serious handicaps to efficiency will be removed and a long step forward in good government will have been taken. One of the greatest handicaps to good administration is the lack of inducement for a career, arising from inadequate salaries for administrative and technical positions in nearly all branches of the government service. Adequate salaries which would be an incentive for the best to remain in the service of the government would be of great value to the service, and would remove many difficulties arising from inexperienced men filling responsible positions. With an excessive turnover in the personnel, including administrative officers, mistakes in administration are to be expected. It is no more possible to operate an important department of the Federal Government satisfactorily with a large proportion of inexperienced officers and employes than it would be to operate a bank or a great mercantile establishment successfully with inexperienced officers and employes. The wonder is in some cases that the government departments do as well as they do. Many men of ability and experience are serving the government at salaries below a living wage. But the losses to the service due to resignations of such men in responsible positions are very serious and the situation is steadily growing worse. Paying low salaries to men in important administrative positions leads to inefficiency and waste rather than to economy.

FUNCTION OF CIVIL SERVICE COMMISSION

The function of the Civil Service Commission as an employment agency is to be of maximum service to the executive departments in filling positions and administering the personnel.

⁹ So far as the higher positions are concerned, therefore, the retirement law offers no incentive for entering the government service, but is one more reason for increasing salaries. For the deductions from salary, coming after so many increases in the cost of living, are in many cases like the straw that breaks the camel's back.

In addition to safeguarding the interests of the public and of the employes by keeping the service free from the effects of politics and favoritism, it is able to render great assistance to administrative officers by finding men and women who are qualified for the various positions to be filled, taking full account of the needs of the service and of the importance in many cases of special training and experience. In the case of supervisory and technical positions, administrative officers and their trained assistants who know the requirements of the work and the qualifications needed, and who are responsible for the results obtained, are given a large measure of authority as well as of responsibility in making appointments and promotions. The Civil Service Commission should, however, be closely in touch with the bureaus and departments and should be so well manned and so well acquainted with the needs of the service that it can advise, or overrule if necessary, intelligently and sympathetically. The experience of the Civil Service Commission shows that administrative officers as a rule welcome its assistance and advice when they can deal directly and can understand one another. Difficulties, when they occur, are generally caused by lack of understanding from lack of contact. Prompt and efficient administration is important; excessive formality and routine, involving serious delay and unnecessary expense, should be avoided.¹⁰

PROMOTION ON MERIT

One of the greatest handicaps to efficiency in the government service is the inability frequently to promote men when they deserve promotion.

¹⁰ It is generally considered in the executive departments that the Lehlbach bill is to be preferred to the Jones bill in this respect.

Promotions are made in recognition of increased earning power and to avoid losing employes through resignation. The government is in competition with business and educational institutions both in appointing and holding its employes. In most cases it pays relatively low salaries for special qualifications, and imposes conditions as to hours of service and limitations as to one's free time which are often a real hardship.¹¹ Moreover, men in the scientific and technical branches of the government service acquire information and training of great value in the business and educational world, and they are eagerly sought for at a much higher rate of compensation. This is one of the most serious obstacles to efficiency and success in the government service and must be faced squarely if the government's work is to be conducted on a high plane.

It is not expected ever to have salaries so high in the government service that such a flow of able men out into commercial and educational work would be prevented. Indeed, it is not desirable to try to prevent it altogether. But enough good salaries should be provided so that a reasonable proportion, at least, of able and experienced men could be retained, to serve as

¹¹ Scientists and engineers in the service of the government work six days a week, eleven months in the year or more, often putting in a great deal of overtime without extra pay, and are restrained from accepting retainers or extra compensation from outside sources which would be perfectly proper in private employment. The absence of Sabbatical years and of the retiring pensions of the colleges are a further deterrent to men of standing from entering the government service from the colleges. These facts in conjunction with the inadequate salaries of the government explain why it is generally impossible to recruit the higher positions from the colleges, and why administrators are so anxious to retain able and successful men who have been trained in the government service, and why it is so important to be able to select good material for the entering grades and to promote men as they develop.

administrators and educators to the rising personnel. In many cases the work is so important or so technical that only men of special training and considerable experience are competent to undertake it. In these cases the salaries should be such as to make it possible to build up and maintain an able and experienced staff. The needs of the government service should be the first consideration. Training men for the industries should be incidental. The present inadequate salary scale in many departments leads to resignations in a great many cases just when the men are becoming really useful. This makes the work unsatisfactory and its costs excessive. It is one of the most important causes of inefficiency in the government service.

The United States Government is the greatest business organization in the country. It employs in the executive departments more than half a million men and women in hundreds of different kinds and grades of work and carries on a business which is not only larger but more complex than any other in the country. It ought to pay generous salaries, and employ the ablest executives, not only at the head of the various bureaus but all along the line. Such a policy would pay not only in the better quality of work done but in the reduced cost of the work.

That the scale of salaries is inadequate in most cases is proved by the rapidly changing personnel and the difficulty of filling positions. It is a by-word among business men and in the colleges that the government service offers little inducement for ambitious men, except as a stepping stone to something outside the government service. Nevertheless, the responsible administrative and technical officers who conduct the various branches of the executive departments of the government represent collectively more of

ability, integrity and loyalty than they are commonly given credit for. They realize more fully than may be supposed the defects and inefficiency of the government service, although these are often grossly exaggerated in the press and on the platform. They also realize the tremendous handicaps to efficiency that are beyond their control, and which they are fervently hoping may be removed. No private business could succeed with such handicaps as well as the government does, and very many do worse as it is. If the executive departments could have a fair chance for a few years, with a reorganized and standardized civil service system and a budget, they could show the country results which would be both creditable and gratifying. Rearranging the bureaus or reorganizing the departments can not possibly make the government efficient without the more fundamental reorganization of the personnel.

Distribution of Personnel Among the Departments

Much has been said recently about the excessive number of employes in the government service, and the need of drastic reductions. The war had increased the activities of the government in nearly all departments, and it required some time to get back to a peace basis. The number of employes has been considerably reduced during the past few months, but figure 19 shows that on July 31, 1920, the only departments or branches of the service included in the civil groups in this classification that had a relatively large increase over the personnel figures of 1916 were the State and Treasury departments, and these are the departments which have had their activities so greatly increased by the war that this condition could not be avoided. As already explained, the collection of

DISTRIBUTION OF FEDERAL EMPLOYEES 1916 AND 1920

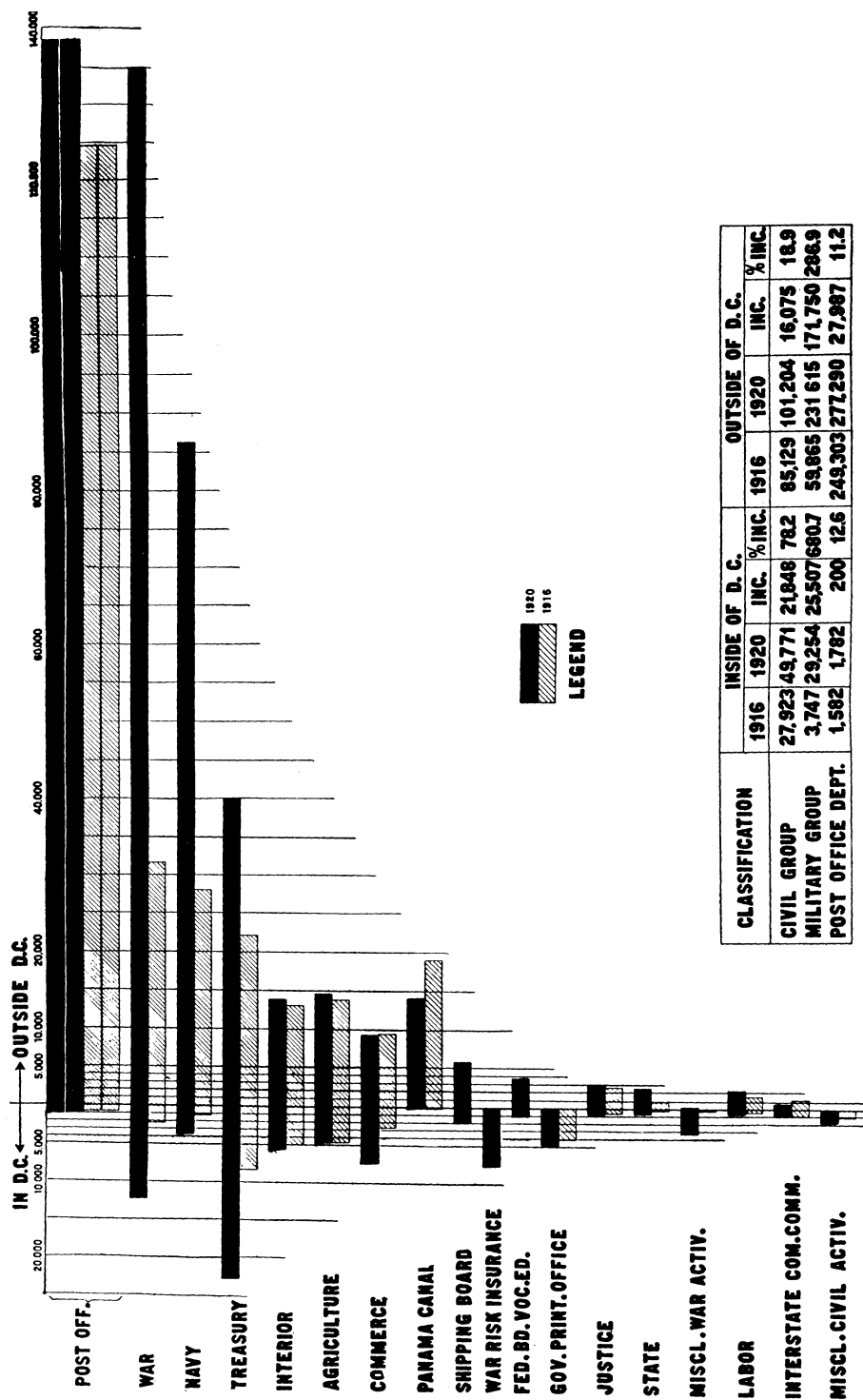


FIGURE 19

This figure shows the distribution of the Personnel in the various departments of the federal Civil Service, in Washington and in the country at large, and the changes in personnel between the years 1916 and 1920.

the revenue has developed into a gigantic undertaking and the increase in that service alone in the Washington office was more than 5,000. In the divisions of loans and currency, the increase was more than 2,000, and in all branches of the Treasury Department (outside of War Risk Insurance) all over the country it was over 32,000. The figures are obtained from the Civil Service Commission and compare the civilian personnel of June 30, 1916 with that of July 31, 1920.

The Post Office Department increased in four years from 250,885 to 279,072, a difference of 28,187 or 11.2 per cent. The War and Navy Departments, War Risk Insurance, Shipping Board, Railroad Administration and other boards included in the military group had increased from 63,612 to 260,869, an increase of 197,257 or 310 per cent. The departments of Treasury, Interior, Agriculture, Commerce, Panama Canal, Government Printing Office, Justice, State, Labor, Interstate Commerce Commission and miscellaneous (taking them in the order given on the figure) increased in the aggregate from 113,052 in 1916 to 150,975, a difference of 37,923 which is 33.5 per cent. Omitting the Treasury and State departments from the list, the civil departments which have had the greatest permanent increase due to the war, all the other civil departments named increased from 81,376 to 84,825, a difference of 3,449 or 4.2 per cent. Meantime the population of the country has increased more than five per cent. That is, all these civil departments and commissions, aside from the two which have had large increases in order to take care of increased war activities, have increased their personnel in four years at a rate less than the rate of growth of the population of the country. The Department of Commerce had an appre-

ciable increase almost entirely due to the decennial census of 1920, which, however, is temporary and many of these extra employes have already gone. On the other hand, the Panama Canal had a decrease of about the same number. Considering the very moderate increases in the expenditures of the civil departments and the considerable increase in the cost of supplies and labor and in the miscellaneous expenses of doing business, it should not be surprising to find so small an increase in the personnel of the civil departments outside of the two exceptions named. It is, however, apparently quite different from the general opinion, and in justice to the departments concerned, it seems worth mentioning.

The Cost of Living and the Purchasing Power of Salaries

During the last eight years there have been great changes in commodity prices and the cost of living and in the general scale of wages, salaries and charges for professional service; and some branches of the government service have readjusted their salaries accordingly. But many could not do so, and the result, taking the government as a whole, is an inconsistent and irrational system that makes a high standard of efficiency and good service practically impossible.

Figure 20 shows the results of investigations by the United States Bureau of Labor Statistics and the National Industrial Conference Board, the latter consisting of representatives of a number of large manufacturing corporations. The curves show the trend of wholesale commodity prices and retail food prices since 1913, and the cost of living as calculated by these two organizations. The cost of living increased during 1920 to more than 200, on the basis of 100 for 1913, and

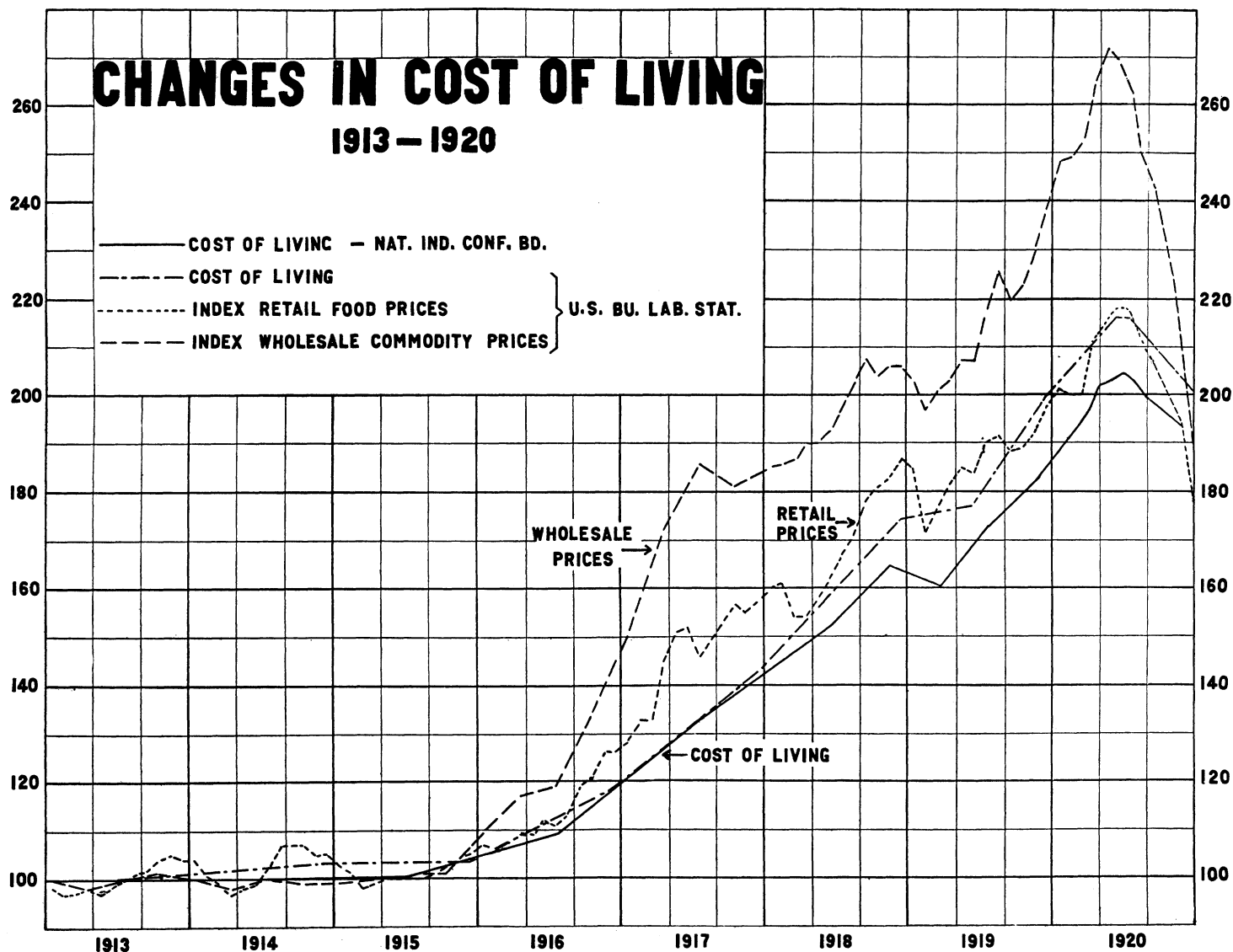


FIGURE 20

This figure represents the changes in the Cost of Living during 1913-1920. The graphs correspond to data from the following sources:

National Industrial Conference Board—*Research Report No. 33*, December 1920, p. 29.

U. S. Bureau of Labor Statistics—*Monthly Labor Review*, February 1920, p. 87; October 1920, p. 65; December 1920, pp. 30, 63; *Circular No. 968*, January 18, 1921

PURCHASING POWER OF SALARIES 1914-20 PREPARED FROM NATIONAL INDUSTRIAL CONFERENCE BOARD DATA

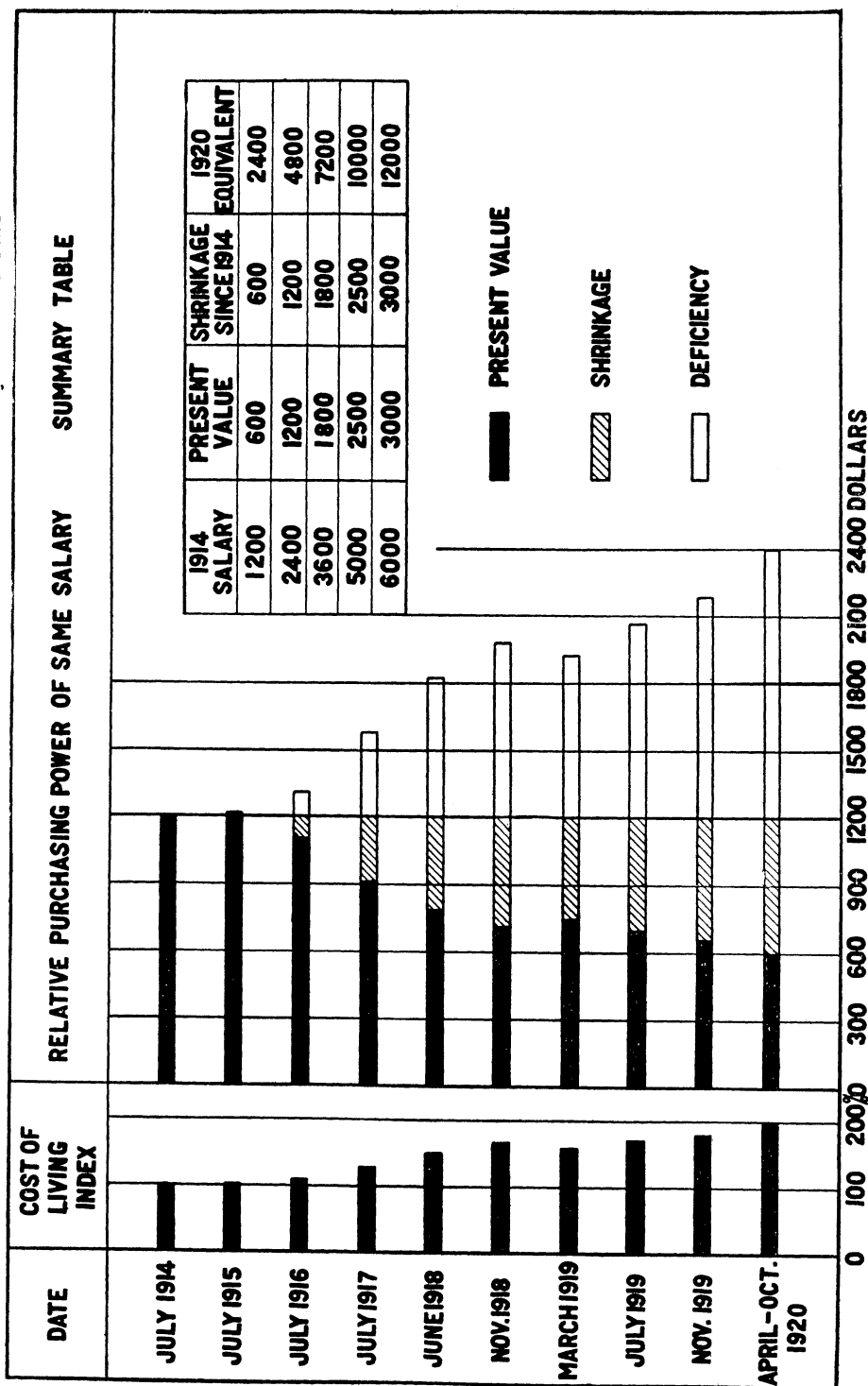


FIGURE 21

This figure represents the change in purchasing power of salaries during the period 1914-1920 as determined by the changes in the Cost of Living. The figure is based on the cost of living data of the National Industrial Conference Board reports. The cost of living figures of the U. S. Bureau of Labor Statistics for the same period are somewhat higher (see Fig. 20) and would accentuate the decrease in purchasing power of salaries shown.

then declined to about 180 by January 1, 1921. There may be further declines in living costs, but there seems little prospect of getting back to the 1913 level or anywhere near it. Nobody proposes a reduction back to pre-war figures of wages or salaries that have already been advanced, although many that have been advanced 100 per cent or more may be reduced. The very moderate advance proposed for government salaries generally will still leave a wide margin between this advance and the relative increase in the cost of living, so that the latter may fall considerably further without falling below the new salary scale.¹²

Living in Washington is still relatively expensive. Houses are scarce and rents are high, and government employes with families find it difficult to live on their incomes. The purchasing power of salaries has fallen greatly since 1913, and still more since 1901 when many government salaries were substantially the same as now. Figure 21 shows graphically how salaries shrank between 1914 and 1920. Although justice and fair play would dictate a readjustment of government salaries, that is not the only reason for urging it, nor is it the strongest reason. If the government could continue to underpay a large proportion of its employes, and could permanently obtain good service at inadequate salaries, and thereby save money and reduce taxes by so much more than would otherwise be possible, that might be regarded as sufficient reason to adopt that policy and keep the wage scale permanently low. But that is

¹² It is estimated that the average increase in salaries provided by the Jones and Lehlbach bills is about eight or ten per cent above present salaries including the war bonus now paid. Many would get no increases, many would get five per cent or less, and many of those who now get no bonus would get larger percentage increases.

impossible except for a relatively few positions. A limited number of men with independent incomes or without families may always be secured at inadequate salaries, and of course many others who use the government service as a stepping stone to something better.

But a high average of ability and experience can not be maintained without adequate salaries, and for lack of it recently the service has, to a large extent, been demoralized. Discipline and good service are impossible unless men and women are well-paid and contented. Efficiency is impossible without competent and experienced administrators. Low salaries and an excessive turnover in the higher officers is not economy but wastefulness. Giving a bonus of \$240 only to employes with salaries not above \$2,500 per year, and no increase of compensation to those above, assumes either that living costs have not increased to those in the more responsible positions, or that their services are less important and their resignations a less serious loss to the service, or that they have independent incomes to fall back upon, or that they may properly use up their savings laid by for an emergency or for old age, and will willingly do so. These are unwarranted assumptions, and because this problem has not been met the government service in some departments has been seriously crippled, and will take years to recover. It is hoped that the public will take an active interest in this question, and urge that in the interest of economy and efficiency, and good administration, the proposed readjustment of salaries may soon be made.

Figure 22 prepared from Bureau of Labor Statistics data gives a comparison of the wholesale prices of commodities for the years 1910-1920, and the net per capita cost of all the civil activities of the government. This shows

WHOLESALE PRICES 1910-20

COMPARED WITH U.S. CIVIL EXPENDITURES

1913=100 PER CENT

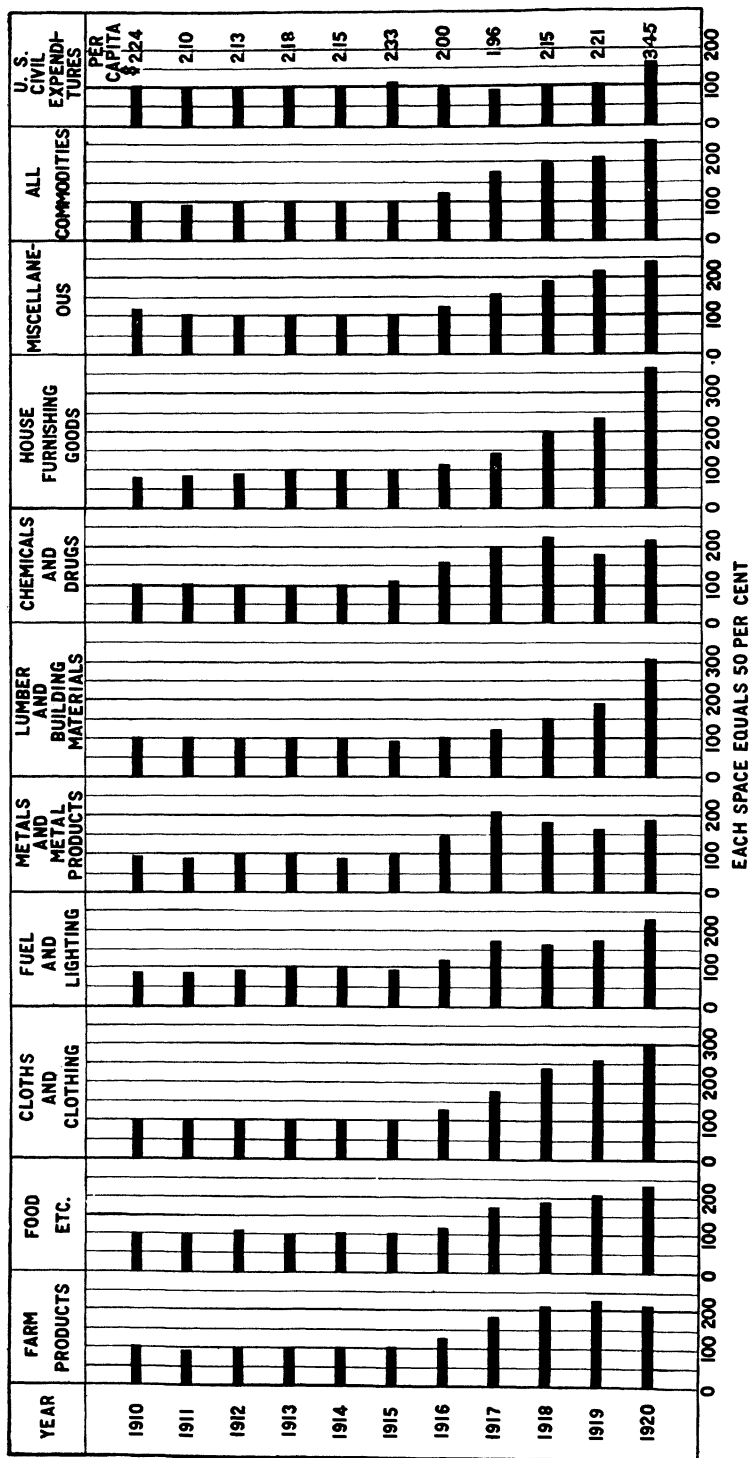


FIGURE 22

This figure is based on the Wholesale Prices data of the U. S. Bureau of Labor Statistics, *Monthly Labor Review*, February 1920, p. 89, December 1920, p. 63, and material in press January 1921.

that while wholesale price levels of commodities on the average more than doubled between 1910 and 1919, the per capita cost of the civil activities of the government varied only slightly from year to year. The relatively large increase in 1920 is principally due to the added work incident to the collection of the increased revenues, to prohibition enforcement, to conducting the decennial census, and to the construction of public highways, although there was some increase due to increased compensation to employees and the further increase in the cost of commodities.

The cost of running any business, including government, aside from capital charges, is made up of the cost of goods (equipment, materials, etc.) and the cost of services (wages and salaries). Since the government paid prevailing market prices for its supplies, the net cost of the civil activities, which include the former, was only maintained at practically pre-war levels up to 1919 by a considerable curtailment of public works construction and of some of the other activities of the government, sufficiently to offset the increased cost of labor and supplies and the considerable expansion, due to the war, in some departments. Attention is especially called to the striking contrast of the cost of doing private business, as shown by the increasing cost of commodities from 1915 to 1919, and the nearly constant per capita cost of the civil activities of the government in those years.

Duplication of Work in the Executive Departments

Much is heard these days about duplication of work by the government departments, and the waste of effort and money caused thereby. It is true that there is not and probably never has been perfect coördination of effort among all the departments. A

well-organized budget bureau, including in its functions the task of keeping in close touch with all the departments and bureaus and assisting them in delimiting their activities and in coöperating with one another, especially where their fields necessarily overlap, would render a very useful and much needed service. It is hoped that in the near future this long-felt want will be supplied and a distinct advance made in efficient government. In the meantime, however, the bureaus and departments are coöperating, in most cases, as well as could be expected under existing circumstances. It is believed that many of the examples of duplication cited are more apparent than real. The Bureau of Efficiency has studied this question, and has diligently sought for cases of serious duplication. But it finds few such cases.

STATISTICAL WORK

One of the most frequently cited examples of the kind is the collection of statistics. It is sometimes suggested that all statistics should be collected by one agency, which would do the work with better facilities and at less cost than the respective bureaus most concerned in the given subject could do it. At present the Interstate Commerce Commission collects statistics about the railroads, the Federal Trade Commission about the subjects it is investigating, the Federal Reserve Board and the Treasury Department about business and fiscal matters, the Bureau of Education about educational activities, the Geological Survey about minerals, the Bureau of Labor Statistics about employment conditions, wages and the cost of living, the Agricultural Department about crops and markets, the Bureau of Foreign and Domestic Commerce about commerce, while the Public Health Service gathers mortality and morbidity statistics and the Bureau of the Census enumerates the

population and gathers statistics about the wealth, taxation and industries of the country and the revenues and expenditures of states and cities.

One might think that here is a case of duplication on a grand scale, and that by having one central agency collect all the statistics and distribute them to the various departments and bureaus concerned, it would be better and more efficiently done. A little consideration will show that this would be exceedingly difficult. Gathering statistics is not a mechanical process merely, nor a task for statisticians working by themselves. In order that the statistics be of value, they must be gathered under the direction of experts of the subjects investigated as well as of experts in statistical work, and frequently only the experts of the respective bureaus concerned know what information is wanted and how it is best obtained. If at the proposed central agency for collecting the information we provide equally competent experts in all these various fields to direct the work and handle the information as it is received, we should have a new kind of duplication, with two sets of experts instead of one, one set to supervise the gathering of the information and the other to interpret and make use of it. That would appear to be a more expensive method and less satisfactory in operation than the present method. For if those who utilize the information supervise its collection, they not only have it more promptly but can get preliminary results from incomplete data and can modify the plans made if it appears desirable, or perhaps stop short of what was first proposed.

A central board with representatives of all the agencies doing statistical work, acting as a coordinating agency to secure the maximum degree of cooperation, and to prevent overlapping and conflict of effort would appear

practicable and highly desirable. The Bureau of Efficiency acts as such a central coordinating agency to some extent, but there might be closer cooperation and probably some consolidation of such work. That is a different thing from one agency taking over and managing all the statistical work of the government, and setting up various staffs of experts which would duplicate those already in existence in the various departments. The statistical work of the government can perhaps be done more efficiently than it is now done, and kept more nearly up to date in some cases. I would not express an opinion on that question. But it appears doubtful if such work could *all* be centralized in a single agency and be better or more economically done than it is at present.

SCIENTIFIC RESEARCH

It has sometimes been supposed that all chemical work could be concentrated in one central agency, instead of having many chemical laboratories. Chemistry in the government service is a means to an end, and not an end in itself. Chemical work must be done where the need arises, in connection with food products in one place, with minerals in another, with gases and explosives in another, with sanitation and health in another, with industrial processes in another, and so on. One could as well concentrate firemen, or watchmen, or stenographers in one department as to concentrate all government chemists in one department.

Examples of apparent duplication in other scientific research are sometimes pointed out. Some real cases have, indeed, been corrected, and probably some still exist. But it is believed by those well informed on the subject that the number of cases of improper duplication of scientific research in the government service is relatively small. It will undoubtedly be further reduced

by the better coöperation and coördination of effort which a budget bureau when established will be able to provide. In the meantime the scientific bureaus are actively coöperating with one another and endeavoring to do the most necessary work and refrain from unnecessary effort and duplication.

However, duplication in some cases is commendable. Where a problem is of supreme importance and great difficulty, the chances of success are increased if more than one person or agency attempts it. In some cases the difficulties and uncertainties are such that the result of a single effort would not be trusted, and two independent agencies could well attack the problem simultaneously. Often when two men or two agencies appear to be working on the same subject, they are found to be studying different phases of that subject, or are attacking the same problem from entirely different standpoints, and are really not duplicating each other's work at all.

ENGINEERING WORK

Engineering work is sometimes referred to as an example of duplication, because so many of the government departments and bureaus employ engineers and do engineering work. Engineering is the application of science to useful ends, and the government employs a great many kinds of scientists and engineers in many different kinds of work. Various bureaus of the Army and the Navy, the Geological Survey, the Bureau of Mines, the Coast Survey, the Bureau of Standards, the Reclamation Service, the Interstate Commerce Commission, the Bureau of Public Roads, the Forest Service, and other government agencies employ engineers.

In the proposed classification of government employes, twenty-one different kinds of engineers are recognized.

To consolidate all engineering work in one or a few agencies would involve a very radical redistribution of functions, and would lead to confusion and often new cases of duplication, as pointed out, in other kinds of work. There is, of course, good reason for grouping together bureaus that are predominantly of a scientific or engineering character, provided we do not sacrifice some more important consideration in doing so. A Department of Commerce and Industry would be presumed to contain so far as possible all the bureaus concerned with commerce and industry, including some doing engineering work. Similarly a department of Public Welfare or of Science and Education might be formed to group together certain related activities, which would necessarily include more or less of engineering. A Department of Public Works would presumably perform a large amount of engineering. But to have one department perform all the engineering work of the government would associate very heterogeneous functions and activities together, and, as it would sacrifice major considerations to minor ones, would seem to be utterly impracticable.

MAP MAKING

Map making is another example of alleged duplication. The Coast and Geodetic Survey makes the surveys of the shore line and all coastal waters of the United States and its possessions for nautical charts, and establishes the primary horizontal and vertical control points or stations of the country from their own surveys. The Geological Survey makes topographical surveys and prepares and publishes the standard topographic maps based on the fundamental control surveys of the Coast and Geodetic Survey. The Engineer Corps of the War Department makes military maps, principally

in the Philippines, Hawaii and Panama. The Hydrographic Office prepares maps for the use of the Navy, but its work is confined to areas entirely outside the continental limits of the United States. The General Land Office makes surveys and maps of the public lands for facilitating placing settlers on unoccupied areas; the Reclamation Service maps its own reclamation projects when necessary. The Bureau of Soils makes soil surveys and plots the same on special maps, and no one could do this better than the soil experts who make the surveys.

Each service is engaged in a different kind of highly technical work and handles its own data and constructs its own maps, although using the data of other agencies so far as possible. If each made the same kind of maps, it would involve wasteful duplication; but all the maps could not be made by the same group of artisans and map experts, and it is not believed by these map-making agencies that it would be better to have it done by one agency. The Board of Surveys and Maps of the Federal Government represents all the federal agencies concerned and the question of securing greater efficiency is being given careful consideration. In the meantime the board is securing coöperation among all the map-making agencies of the government, and also coöperating with private map-making agencies and is striving to avoid unnecessary duplication. It is very probable that there would be loss and not gain to attempt to consolidate all of the technical map work of the government in one place.

PUBLIC HEALTH

Public health is another subject in which wasteful duplication has been charged. The Public Health Service is the one great agency of the government which is primarily concerned with

this subject, and it is sometimes suggested that all activities relating to public health should be performed by that organization, and that the present method of distributing some of these activities and having a number of departments and bureaus coöperate in public health work is wasteful. The problem is, however, not so simple as it might appear at first glance. The State Department collects much valuable information all over the world on subjects related to public health, including results of investigations relating to epidemics and vital statistics and transmits them to the Public Health Service. This is useful coöperative work, and of great value to the Public Health Service. For the latter to send its agents abroad to collect this information independently of the State Department would be enormously more expensive and more difficult than the present method.

The Interstate Commerce Commission performs some public health functions in connection with its supervision of interstate commerce and travel. It is done effectively and in perfect accord with the Public Health Service, and is another example of commendable coöperation. To require the Public Health Service to do it because it is logical to have all public health functions performed by one agency would probably involve increased cost and complication of administration that would be a heavy price to pay for the gain resulting from a consolidation of functions. The Post Office performs some public health functions in connection with the mails, but it is done in coöperation with the Public Health Service. To require the latter to go into the Post Office Department and do what the Post Office is now doing for itself would probably lead to greater rather than less expense and confusion. The Bu-

reau of Mines is charged with some public health functions in connection with mines, but the work is performed for it by the Public Health Service.

The Department of Agriculture is doing a large amount of public health work in connection with food products. That department believes that it is just as logical to have all investigations and regulations concerning agricultural and food products in one department as it is to have all public health work done by one agency. The important and extensive meat inspection work of the government is carried on by the Bureau of Animal Industry, a bureau devoted to the investigation of a wide range of problems in animal industry, including the diseases of animals. The inspection of animal carcasses slaughtered for human food and of meat-packing plants and processes seems a very natural extension of its work. This is, of course, a public health function and might be transferred to the Public Health Service. But if so, it would replace one kind of duplication by another, and it is a question which is to be preferred. The animal quarantine laws are also administered by the Department of Agriculture.

Again, the Bureau of Chemistry enforces the pure food laws, which is in part a public health function. If this were transferred to the Public Health Service, there would probably be two chemical laboratories instead of one studying food products, one in the Department of Agriculture studying the questions of production and distribution not primarily concerning the public health, and the other in the Public Health Service studying foods in connection with the enforcement of the pure food laws. Whether that would be better than the present arrangement is the question. At present the two agencies are coöperating and assisting one another. The divi-

sion of the Bureau of Chemistry which enforces the laws concerning the sale of drugs is in charge of a surgeon detailed from the Public Health Service, who has the resources of the Public Health Service and the Bureau of Chemistry at his command. One aspect of the matter that should not be overlooked is that the enforcement of the pure food laws is largely an educational matter, the aim being to instruct and assist the industries, so as to obviate so far as possible the necessity for prosecution. It is desirable, therefore, that the enforcing agency be thoroughly in touch with methods of production and know what is possible and practicable.

The Bureau of Fisheries supervises, among other things, the catching and packing of salmon in Alaska and the Columbia River, to prevent their extermination and to make sure that the meat is fresh when packed. The latter is, of course, a public health function, but it is much more convenient and economical to have both functions performed by one set of inspectors than to have two sets, one representing the Bureau of Fisheries and dealing with the culture and protection of fish, and the other with the precautions to protect the public health. The latter method would involve a much more serious kind of duplication than the former; and it is a question whether it would not be less businesslike and less effective.

The Bureau of Immigration performs some public health functions, but there is close coöperation with the Public Health Service, which makes the principal medical examinations of immigrants, as provided by law; and there is no duplication of effort between the two services. The Army is concerned with public health, and again there is close coöperation with the Public Health Service. A central

coördinating board, like the Federal Board of Maps and Surveys, might be very successful in securing more effective coöperation of all federal agencies in this important work.

FEDERAL AND STATE COÖPERATION

More difficult than the relations of the departments of the Federal Government to one another in public health work is the relation of the Federal Government to the states and cities. Here again one can not carve out a block of activities and say that therein the Federal Government is supreme, and outside it the states and cities may function without restraint. Overlapping of fields is inevitable and hence there must be coöperation, and a good understanding, and the proper spirit of accommodation, and above all a desire to serve the public as effectively as possible. The bad consequences of a lack of coöperation and understanding are quite as serious as duplication of effort, and in some cases far more so. The whole problem calls for the most careful study and intelligent handling. No mere reorganization would solve the difficulties unless provision is made for coöperation of the various agencies concerned, federal, state, municipal and private, and this applies not only to public health work, but more or less to all the scientific and technical work of the government and much of the inspectional work.

If a more complete information service could be maintained among the departments, so that the information or technical facilities existing in one place could be made known and be available wherever and whenever they may be needed, and thus mistakes or useless effort or duplication of facilities be avoided, it would be of great value to the service and tend to increase efficiency. Much of the value of scientific and engineering societies lies

in the contact they provide between those engaged in similar lines of work and the opportunity afforded to get this kind of information. In the government service this need is partially met in such unofficial ways, and also partially through official channels, but there is undoubtedly room for improvement.

BARRIERS TO COÖPERATION

One of the most frequent reasons for incomplete coöperation is the lack of funds to enable a given bureau or agency to do the work in its line that another agency of the government needs. In such cases the bureau needing the service will often from necessity do the work for itself, and may thus get a line of work established which is continued. This is the way in which some of the map-making work originated. If the Coast and Geodetic Survey and the Geological Survey had been provided with sufficient funds to do all the work, the occasion for starting the work in some of the other branches of the service would not have arisen. Until very recently the transfer of funds from one department to another to cover the cost of work done by one agency of the government for another was not permitted. That is, a bureau having funds and needing an investigation or survey or other service could not repay some other bureau that was especially qualified to perform that service for the cost of the work. Hence, if the other bureau did not have surplus funds and so could not bear the expense without reimbursement (a condition that often occurs), the bureau needing the service would be obliged to do the work itself or employ someone outside the government to do it. This legal barrier to coöperation tended to promote duplication. Since the war, when the necessity and advan-

tages of coöperation among the departments was so fully demonstrated, Congress has authorized the transfer of funds from one branch of the government to another, for services rendered or to be rendered. The next step will be, when a budget bureau is established, not only to permit such transfer of funds, but to encourage or even in many cases to require it, in order that work may be done to best advantage and duplication of work and facilities be reduced to a minimum.

It should not be understood from the above that there are no examples of undesirable duplication in the government, or that great improvements can not be made. On the contrary, many improvements can and should be made. But many of the cases of duplication and waste frequently cited are apparent rather than real, and others have arisen from circumstances beyond the control of the bureaus concerned. It is important in proposing remedies not to suggest a worse condition than the one to be corrected. The problem is exceedingly difficult, and can not be solved by the same procedure in every case. The government service is so extensive and complex that there is great need of a competent and effective coördinating agency, which would be able to promote coöperation and a good understanding and largely eliminate unnecessary duplication of effort; and such an agency it is presumed the budget bureau will become.

The Value of Research and Standardization in Government

We have discussed above two major reforms or advances in the Federal Government which it is generally hoped may be realized at an early date, namely, (1) the classification and standardization of the personnel of the government, with the accompanying adjustment in compensation when

necessary, so as to make it possible to maintain a high order of public servants and have a competent and efficient public service; (2) the establishment of an executive budget handled by a well-equipped budget bureau, so that the work of the government may be systematically planned and coördinated, and its various departments and bureaus may coöperate to best advantage, on the one hand avoiding duplication of effort and equipment, and on the other, seeing that important work is not neglected through lack of provision for it. A third improvement now under study and discussion is the rearrangement of some of the activities of the government, so as to form more logical or more convenient groupings and perhaps enlarge or add some activities now inadequately provided for.

These improvements, if fully realized, should constitute the greatest advance in the effectiveness and efficiency of the government that has been made in many years. There is a fourth advance that can be made, comparable, I believe, in its beneficial results with the others mentioned, namely, the application in far greater measure than heretofore of the methods and results of science to the conduct of government. Science has had an honored place in the scheme of the Federal Government, and has rendered invaluable service in many directions. There would be nothing new in what is proposed except that the utilization of the methods and results of science would be more general, and scientific research would be carried out on a much more adequate scale than heretofore. Scientific men should not be looked down upon as theorists nor looked up to as philosophers, but regarded as equally necessary with business men and lawyers and others in the solution of the manifold problems of government.

In doing things as well as possible, whether in business or in government, it is necessary to have full information. To know, and to do as well as we know, is what is needed. To solve the problems of government successfully will be difficult enough if the fullest information obtainable by means of scientific research is available.

All experience shows that such work if wisely planned and competently conducted is profitable; it would pay for itself many times. As it would be an investment that would return dividends almost at once, its cost is not a serious objection. Large and successful business organizations have found such use of science to be profitable, and the business of the government is no less important and would probably be benefited by such work no less than that of private concerns. During the World War the governments of the various nations utilized science extensively in devising methods of destruction, as well as of protection. Should we not be as diligent in utilizing the creative and beneficent results of scientific work in times of peace, as we were in utilizing it for destruction and protection in time of war?

In the application of the methods and results of science to the problems of government, one of the first things to come to mind is the problem of public health. The war showed an unsatisfactory condition as to health of a surprisingly large percentage of those examined in the draft.

The greatest waste in all ages of the world has been the waste of human life, and what the government does for its people in this respect is one of the best measures of the quality of government as well as of civilization itself. To contend that the state is concerned only in minor degree for the lives or health of its citizens assumes not only callous unconcern to human suffering,

but stupid indifference to economic loss. Such economic loss arises from the necessity of caring for the indigent and from the loss of production of those wholly or partially incapacitated, and the loss of those whose death is preventable. A far larger sum for medical research and sanitary precautions would be justified from economic considerations alone; it would be justified again by the desirability of rendering the maximum of service practicable to the tax-paying public; it would be justified still again by considerations of humanity and service to mankind. For the benefits of research in medicine are as wide as the world, and this country can well afford under present circumstances to give to those beyond our borders some benefit of this kind for all we have received in times past from without.

In the many social and economic problems which arise in connection with government, there is great opportunity to apply the methods and results of science, and much is now done in this direction. Without going into the question of what more should be done in this important field, I wish to point out a line of work which vitally affects the conduct of the government's business, as well as the interests of business outside the government, in which it would appear that very much more could be done to advantage than is now done.

One of the commonest and most necessary acts of government is purchasing materials and supplies, paper, ink, office equipment, coal, lumber, machinery, electric lamps, instruments, chemicals, textiles, leather goods and hundreds of varieties of manufactured product. Such government purchases must be made in the open market, with no favoritism to particular bidders, and the lowest or at least the best bid accepted. No officer of the govern-

ment can award contracts intelligently and fairly and accept or reject deliveries justly without proper specifications and full information as to qualities. To prepare specifications that are adequate and fair is a difficult matter and often involves extended research. If the government does this work intelligently and does its buying wisely, and tests deliveries systematically, it not only gets what it bargains for, and saves far more than the cost of the testing, but it maintains its dignity and integrity, encourages good quality and good workmanship, raises the standards of business, and benefits the general public. On the contrary, if it buys with inadequate specifications, and accepts goods without test, it lays its representatives open to charges of favoritism or collusion, encourages misrepresentation, discourages clean competition, rewards the dishonest, and defrauds the taxpayer who ultimately pays the bills. As between these two methods of doing business, it would seem that there was no room for hesitation, and yet the officers of the government are often forced to use the second method instead of the first from the lack of proper specifications and tests because funds are not available to permit the proper agency to do the work.

EXAMPLES OF GOVERNMENT TESTING

For many years electric lamps purchased by the government have been systematically inspected at the factory and samples selected for test in the laboratory. The information so obtained is utilized in the preparation and periodical revision of standard specifications which are used in the purchase and testing of lamps. Electric lamps are made by highly specialized technical processes. It is very easy to make lamps that will give light, but difficult to make lamps of high

quality. Since government purchases of lamps have been consolidated into large contracts and lamps have been systematically tested according to proper specifications, the prices have been the lowest and the quality of the lamps the highest that the market affords. The ordering of lamps by each department is now a simple routine operation, whereas formerly the separate purchasing of lamps involved dealing with agents of various manufacturers and guessing as to who offered the best values. The systematic testing of lamps by the government not only protects the government in its purchases, but it protects the public in large measure, for the testing is a constant check and stimulus to the manufacturer and tends to keep up the quality of the entire product, and so benefits the public. The value of this work, which puts the purchase of lamps by the government on a business basis and protects the manufacturer of a high-grade product as well as the user, is many times the cost of the work. The influence of the government, instead of being hurtful as it formerly was, is thus stimulating and helpful to the industry, tending to raise the quality of the product and to improve business methods.

The testing of paper for the government is another example of constructive work which puts the government's purchases on a business basis and tends to help the industry instead of degrade it. Formerly the government bought paper in great quantities on incomplete specifications and accepted deliveries upon inadequate tests. Manufacturers knew that they could supply something different from what was specified, and one who was willing to do so had the advantage over one who supplied what was called for. This resulted in many manufacturers refus-

ing to bid on government contracts, and created an intolerable situation, which was corrected when the specifications were made adequate and tests were complete and systematic. Such work if properly done, with the full coöperation of the manufacturers, leads to most valuable standardization work, which may in time cover the entire products of an industry.

The government is a large user of textiles. The textile industry is one of the largest and most important of our industries and one which concerns every man, woman and child in the country. If textiles were standardized, so that they could be bought and sold on adequate and intelligent specifications, and consumers as well as wholesale and retail dealers could know what they are buying and could get what they pay for, it would be of enormous benefit to all. Suppose the brand or name of every textile product was defined in such a way as to convey precise information, and the same name always meant the same quality. And suppose that dyes were tested and certified, and one could depend on the mark as to their permanence, and were told what conditions they would stand or would not stand. Would it not be worth many millions of dollars every year to the public to have such information? And would it not be a boon to honest dealers, both wholesale and retail?

The only class to be injured by such a situation would be those who thrive by misrepresentation or by selling inferior goods on their appearance without representation. The thorough investigation of textiles and the preparation of adequate specifications for government purchases, would be of great value, not only to the government, but to the entire public. It seems certain that this work would be

as useful as the grading of lumber, or cattle, or wheat.

Cement is a product that is used by the government in large quantities, and is a material in which good quality can only be assured in advance by special test. The work of the government has been thorough and creditable in this connection and through coöperation with the industry, specifications have been developed which are everywhere recognized as standard. All the cement for the Panama Canal was systematically tested and the integrity of the work thereby assured. Many other products employed in the building industries should be studied thoroughly and standard specifications prepared, and if this is done with the cordial coöperation of the industries, which is assured in advance if the government would take the lead adequately, the benefits to the entire public would be enormous. This work could also be extended to include methods of applying materials, and to a study of heat retarding and fire resisting properties of building materials. Such work is in fact being done by the government on a small scale, but it ought to be carried out on a scale commensurate with the importance of the industry.

CONTRACTS FOR SUPPLIES

The General Supply Committee, made up of representatives from the ten executive departments and acting under the direction of the Secretary of the Treasury, makes contracts for a great variety of supplies used by the government and issues an annual catalog so that all departments may order from the common list. This is an important step in advance over the former method of independent purchase by every agency of the government, but it is far short of what is needed. At present, contracts are for

an indefinite aggregate quantity to be delivered when called for by any department in any quantity however small. The contract extends over one fiscal year beginning some months after the time of bidding, and the contractor must gamble on the future cost of his goods. There is too great an element of chance, both as to quantity needed by the government and the market price during the term of the contract to make it a satisfactory method of doing business. The government should buy in wholesale lots, for early delivery, and do its own distributing, and thus remove the uncertainties as to quantity and market price, and make it a normal business transaction. Moreover, when deliveries are made in small lots at irregular intervals, it not only greatly increases the cost of delivery, but makes it impossible systematically to test the quality of the goods delivered. If deliveries were made in carload lots, samples could be taken and tested to see that they were in accordance with the specifications or terms of purchase, and thus no opportunity would be offered to substitute something different.¹³

The present method often leads to very awkward and embarrassing situations. If the market price falls, the departments are obliged to pay more for the goods than they are worth, and the contractor makes an excessive profit; if it advances, the government often compels the contractor to deliver the goods at a loss, and he sometimes fails to deliver and pleads inability to

¹³As an example, several departments of the government recently received and paid for a large quantity of soap powder which was afterward discovered to contain 8.7 per cent of soap instead of 30 per cent called for in the contract. The contractor admits that it is not according to specifications, and is willing to refund a part of the purchase price, but it has not yet been determined what allowance should be made.

get the goods.¹⁴ It is exceedingly unfortunate for the government to put its department officers into such a position, and to compel them to do business under such a handicap. If, on the other hand, purchases can be made in wholesale quantity as needed, and tested as delivered, and the lowest market prices always paid for the quality needed, the government's business is freed from the element of speculation and uncertainty, and it may be conducted in a strictly business-like way. This will involve some extra expense for conducting the supply department, but it would save a great deal in the cost of goods and also in clerical and auditing work in all the departments.

The problem of specifications and tests for materials and supplies is of very great importance also to states and municipalities. To put purchasing on a sound business basis, free from even the suspicion of politics and favoritism, is practically impossible without adequate specifications and tests of materials. If the Federal Government should coöperate with the states and municipalities on a comprehensive program of work of this kind, it would yield results of enormous value to state and municipal government. This kind of coöperative work also has great educational value to those who participate in it, including representatives both of the government and of business. The purchasing of supplies and the letting of contracts give rise to some of the most difficult problems in government. If there is made available in this work the results of scientific and engineering research

¹⁴Recently a contractor for a material used in photographic work reported that the market price had fallen since he closed his contract with the government and that he could make a satisfactory profit at \$8.00 per pound instead of \$12.00 per pound, which his contract called for. This is, however, not a frequent occurrence.

and coöperative effort in the preparation of specifications and the making of tests, such work can be done in a way to elevate and benefit both business and government.

The accuracy and honesty of the weights and measures of trade are assured by government inspection and test. Commodities are measured when sold and resold, at wholesale and retail, by weights and measures which should comply when new with proper specifications and be maintained up to a certain standard during their useful life. States and municipalities assume the responsibility for the inspection of ordinary weights and measures, but the Federal Government does the work in most states for track scales that require special and expensive equipment to test, and also coöperates with the states in their inspection work. This work is adequately done in some cases, but it is far from satisfactory in most states and cities. Considering the importance of the matter to all the people, and the strong temptation to use inaccurate or fraudulent weights and measures where there is no inspection, it would appear that the government should support this work better than it does.

The war called for scientific research in connection with the standardization and making of munitions, finding and using substitute materials, locating enemy guns by sound and flash ranging, building and equipping airplanes, dirigibles and balloons, and many other major subjects as well as countless minor ones. This called for well-equipped scientific laboratories and the trained personnel of research workers and assistants. The government laboratories of the principal allied countries were utilized to the limit of their capacity, and all kinds of makeshift facilities were pressed into service. When we came into the war

the same was true in this country. If preparations had been begun several years before, results would have been obtained sooner and the war appreciably shortened.

In view of this experience, and the probability that science and technology will be no less important in the future than in the past, the question naturally arises whether this government is giving adequate support to scientific research as a part of its program of military preparedness? In time of war the civil branches of the government will be called upon immediately, and they will be able to render invaluable service if they are adequately equipped and manned. In the meantime, pending the arrival of the war, which we hope will never come, they will be able to render useful service in civil problems and so be more than self-supporting. This kind of preparation for war, which adds nothing to the military budget if the civil departments are adequately supported, should appeal to all as practicable and desirable.

The above are only a few instances, which could be multiplied almost indefinitely, where scientific research and specifications based thereon, and tests made systematically by an unbiased and competent agency, would be of immense value to the federal, state and municipal governments of the country. Specifications would be made in coöperation with the industry and would be accompanied in many cases with standardization that would be of great value to the general public. Their value in raising the standards of business in governments, federal, state and municipal, can hardly be overestimated.

There is another class of standards of great value to the states and municipalities, as well as to industry, in the preparation of which the Federal Gov-

ernment is coöperating. I refer to safety and building codes and other standards of practice.

Coöperation of the Federal Government in the Preparation of Safety and Building Codes and Public Utility Standards

One of the most valuable opportunities for coöperative work by the government is in safety research and education; that is to say, in studying methods of reducing accidents in the industries and in every-day life, in formulating sets of safety rules or codes, and in assisting the accident and industrial commissions of the states in adopting and administering them and manufacturers in complying with them. More than 3,000,000 industrial accidents occur every year, of which 25,000 are fatal. Many millions of dollars are expended annually by employers for accident compensation and the cost of insurance, and many millions more are lost by injured employes in wages not compensated. Several millions of dollars per year are also spent in accident prevention work. Nearly every state has an accident commission which supervises the collection of compensation for accidents, but many of them do very little to reduce accidents. A few states have provided their commissions with generous sums to enable them to prepare safety rules and put them into effect, and valuable results have been secured by such efforts.

Recently a comprehensive program of safety work has been initiated in which many agencies are coöperating. This work includes the preparation of a large number of different safety codes, covering the hazards of manufacturing in many different industries, including transportation, mining, and the use of electricity, gas, machinery, and explosives by the industries and

the public. These safety codes are more than mere sets of safety rules, often amounting to a standardization of engineering practice in many aspects of an industry, and being of great value in promoting efficiency and good practice as well as safety. They are being prepared by the active coöperation of all the interests concerned, including engineering societies, industrial and insurance associations, state accident boards, manufacturers of machinery and appliances, and the Federal Government. The work is under the general auspices of the American Engineering Standards Committee, which gives its approval to the codes. The work of preparing the codes involves study and discussion, a comparison of experience and a consideration of the best operating methods. Efficiency and good service are considered as prominently as safety.

Some of the more important examples of these codes are the steam boiler code of the American Society of Mechanical Engineers, the electrical fire code of the National Fire Protection Association, and the national electrical safety code of the Bureau of Standards. A national elevator code, codes for steel mills, blast furnaces, foundries, machine shops, textile mills, saw mills, and many other industrial establishments are being prepared or are under consideration.

The government is rendering a valuable service in this work, but the work suffers for lack of funds. The industries, the engineering societies, and the state commissions are doing their share of the work. The Federal Government's share is important and should be well done, and yet at a time when it should be strengthened it has been seriously crippled. The cost of the work is trifling in comparison with its value, and it does not seem possible that this work will be allowed to lag or

cease for want of funds if the general public could but understand its immense importance and usefulness. Aside from questions of humanity and the economic value of human life, the losses in wages and the damages paid in compensation amount to so many millions annually that the small amounts required for the government's share of the work are insignificant in comparison. Probably no work of the Federal Government is more useful or more productive in proportion to its cost, and none is more needed by the country at large. The states and the industries are waiting to put these safety codes into effect, and the great advantage of national uniformity will result if they are prepared so well that they can come into general use. The work should be strengthened and enlarged at an early day, as a measure of efficiency and economy as well as of humanity and good government.

HOW THE GOVERNMENT ASSISTS

There are four ways in which the government assists in this work of preparing and putting into effect industrial safety codes, besides the part it takes in the initiation of the program of safety code work and the general supervision and approval of the work through its membership in the American Engineering Standards Committee.

1. In the capacity of sponsor, to prepare some of the safety codes, with the assistance of committees representing the industries and other interests immediately concerned. The national electrical safety code, the national gas safety code, a national aviation code, a code for the protection of the heads and eyes of workmen, the use of electricity in mines, a general mining safety code, and other codes have been prepared or are being planned by government departments,

either alone or in conjunction with other sponsors.

2. Representatives of the government serve on committees for codes of which engineering or insurance organizations or safety societies are sponsors, and are able to render very valuable assistance if they can attend meetings and do the work involved in such service. It is exceedingly important that the codes be consistent with one another, and as uniform in plan and arrangement as practicable, in order that they may be as acceptable and useful as possible and come to be used in every state so far as its industries require them. The departments of the Federal Government concerned can serve as valuable coördinating agents in this work, if they are provided with the means to work with, and thus make the work more valuable and more generally utilized.

3. The Federal Government can be of very great assistance to state accident commissions in adopting safety rules and codes, if it can send its representatives on request to attend hearings where the codes are being considered. This is coöperative work of the finest kind and of the greatest value. The government in no way infringes upon the states' prerogatives, but on the contrary recognizes the authority and responsibility of the states and responds with assistance only when it is asked. It is efficient and economical, for a few experts in these safety codes, many of which are highly technical and of an engineering character, can explain and interpret them to the accident boards in all the states.

4. The government can perform a useful function in assisting manufacturers and the industries generally in their studies of the codes and in their task of getting them into use. This is largely an educational problem. To educate the millions of workmen in-

volved, throughout all the states and all the industries, is a problem of great magnitude, and the Federal Government can not afford to fail to do the little it is asked to do when the states and the industries are doing so much.

One of the most interesting of the codes in this program is the Aviation Safety Code, covering air planes, air ships and balloons, so far as safety is concerned; their design and construction, their instrumental equipment, their operation, inspection and testing, the qualifications of aviators, signaling systems, landing fields, and various other safety requirements and precautions. The preparation of such a safety code is an engineering and educational work. The code would be useful to any governmental or municipal authority which has occasion to adopt it or parts of it; it would be useful also to aviators and the public even though it were not enforced by any governmental authority. It is important that before local authorities have adopted various conflicting rules and requirements, there should be a thorough study made which can be the basis of reasonably uniform rules and requirements, and in view of the many hazards involved, it is none too soon to begin such a study.

BUILDING CODES

Another class of standards of practice akin to safety codes are the building codes of cities. They contain many requirements regarding the construction of buildings, the question of fireproof or fire-resistive materials, fire escapes and exits, lighting, ventilation, heating, plumbing and in the larger cities a very large number of other requirements. They need to be revised from time to time as building methods change, as new materials or new information are made available, or the

growth of the city makes new provisions desirable.

But the revision of such a code is a tremendously difficult undertaking unless information on the properties of materials and appliances is available from a competent and unbiased source. The Federal Government is in position to render a service of immense value to the cities of this country if with the coöperation of manufacturers, engineering societies and associations of municipal officers it will carry out a thorough study of all the questions involved in a city building code. The work should be carried on continuously and indefinitely, for new questions and new materials will require investigation and the work would probably never cease. But useful results would begin to flow from such an investigation almost immediately, and would continue so long as the investigation lasted.

Some very valuable work of this kind has already been done by the Federal Government, but it has never been adequately supported. The work should be carried out on a scale commensurate with the importance of the problem. It would tend to standardize many building operations, and would in many cases improve construction and in others reduce costs. It is another case where fuller information is needed, and where research made by a competent and unbiased agency and made available throughout the country is the most economical as well as the best method, and tends to standardize and unify practice to the great benefit of the industry and the public. This is an opportune time to take up such an investigation for there is great need of reducing the cost of building, of eliminating needless labor and materials, of standardizing products, and making information as available as possible to architects, to

builders, to manufacturers and to the public generally.

PUBLIC UTILITIES

The government should coöperate actively with the electric light and power, gas, electric railway, and telephone companies in the study of the many engineering questions involved in rendering good service to the public. The changed economic conditions of recent years have made it necessary for most public utility companies to ask for advances in rates, sometimes repeatedly. And as prices decline it is necessary for rates to be readjusted. These frequent rate changes are difficult and perplexing, not only to the companies and the commissions having jurisdiction but to the public as well. As the public in the end must pay all the cost, the public is vitally concerned in having efficient and economical management of these utilities.

The government could render a service of immense usefulness and importance by studying the problems of the public utilities and helping the companies to secure more efficient operation and a better understanding by the public of their difficulties and their needs. The utilities represent a special kind of partnership between their owners and the public, in which the owners agree to furnish the plant and the service, and the public grants a monopoly privilege and agrees to accept the service rendered and to pay the entire cost plus a profit to the utility company. If the company's credit is impaired or it fails altogether, the community, as well as the company, suffers. It is evident, therefore, that public officials' and citizens' associations should take a keen and intelligent interest in public utility problems, and while being fair to the utility company should look carefully after the community's interest.

The government has been rendering important service in studying various public utility problems and working out standards of service. Enough has been done to demonstrate the value of such work and to show that coöperation is practicable. But it could render a service of vastly greater importance to the utilities and to the public, by an expenditure of a generous sum each year for research and education on utility problems. It would cost less than one cent per year per capita of the country's population, whereas the value of the service that would be rendered to the public would possibly be fifty times the cost. The utilities collect several billions of dollars every year from the citizens of this country for service. To expend a few cents out of each hundred dollars paid for such service to improve the service and increase efficiency would be conservative and it could not fail to be profitable. The subject of this investigation concerns not only the quality and cost of public utility service, but often also the quality of municipal government. It is one of the most vital and far reaching questions confronting American municipalities and deserves to be considered very carefully.

There is no conflict of authority in this work, for the legal jurisdiction of the states and cities is not questioned. The Federal Government coöperates with the latter on request, and places the results of its investigations at their disposal. The problems are much the same in all the states and cities, and it is economical to have the investigations available to all. It is the same kind of voluntary coöperation that obtains in the investigations of the problems of agriculture, mining, manufacturing and education. Coöperation of business concerns in the study of the problems of commerce and industry has greatly increased in recent years.

Coöperation among federal, state and municipal governments in studying problems of government is equally advantageous.

RAILWAY RESEARCH

The railroads of the country are our greatest public utility, probably equal in magnitude of investment and annual cost to the public of all the other public utilities combined. The government through the Interstate Commerce Commission has long exercised supervision over the rates charged for freight and passenger traffic in order to prevent discrimination or overcharge, and has also supervised equipment and to some extent operation with respect to safety. It is now completing a valuation of all railroad property and has been given additional responsibilities since the return of the railroads to private management and control.

Owing to the very great increase in wages paid and in the cost of fuel and supplies the railroads are finding it more difficult than ever to pay expenses and earn a reasonable dividend for their stockholders. Rates have been raised repeatedly and still the revenues are insufficient. It is, therefore, more necessary than ever that they should coöperate with and help one another; and that they should increase their efficiency of operation to the very maximum. Here is an opportunity for the government to increase its coöperation with the railroads in constructive scientific and engineering work in order to improve performance, to eliminate waste, to reduce costs and to better the service.

Probably no one would claim that there is no opportunity for improvement in these respects, although it may be that the possibilities are not as great as one would think. If, however, it can be shown that the railroads have attained a high degree of efficiency in

all these respects, and are as economically and efficiently managed as possible, or as could be expected, the employes of the railways will undoubtedly look with much greater favor upon the proposal to reduce wages. In the interest of fair play and the rights of the public, which is called upon to furnish all the revenues from which labor and capital are compensated, it is highly desirable that the railroads be operated efficiently and economically and that the public be assured that such is the case, as should be done with all public utilities. We think of private ownership of the railroads sometimes as though they were private property as to management but a public utility as to service and rates. The railroads, like other public utilities, should be managed and maintained as public utilities, and wasteful competition, inefficient operation, and needless expense should so far as possible be discovered and eliminated. Certainly it would appear desirable under present circumstances for the government to do everything possible to coöperate with the railroads in their efforts to increase their efficiency and make themselves self-supporting.

The Value of Research and Standardization to the Industries

The problem of increasing production and reducing costs in the industries, without increasing the length of the working day or reducing wages so far as to make impossible an American standard of living, is a fundamental one. We can not invoke magic, we can not get something for nothing, we can not depend so much as formerly upon the bounty of nature. Only by greater knowledge and increased efficiency and the more complete elimination of waste can we hope to compete with other countries where labor is cheaper and the standard of living

lower. Industrial research and standardization will play a large part in the solution of this tremendously important and difficult problem provided it is carried on intelligently and adequately, and with the coöperation of all the interests concerned. To secure this general coöperation and the best results, it is imperative that the government should take an active part. We have discussed above the value of research and standardization in government administration. It remains to consider it from the standpoint of efficiency in commerce and industry.

There are serious objections to government ownership or government control of business, although a certain measure of regulation or control is necessary in many kinds of business. But it is hard to think of a valid reason why the government should not coöperate with industry, for the purpose of increasing the productivity of labor, of reducing the waste of effort and materials, of discovering new and better methods, of increasing prosperity and advancing our civilization. Coöperation of many agencies with the aid of the government has been shown to be practicable and profitable in numerous instances. It is welcomed by the industries, it is beneficial to the public, it strengthens the nation. The time is ripe for such work, and the industries are calling for help. It only remains to provide those branches of the government that are in position to do work of this kind the means to work with, and the work will proceed.

It is sometimes objected that governments are to govern and not to assist industry; let business take care of itself. But the people suffer if business is inefficient, those who are employed in the industries as well as those who use the products of industry. Hence the concern of the government is not merely for the welfare of the

owners of the business, but for the welfare of all the people and the country as a whole. In some cases business concerns have consolidated in great corporations, and come to a position where they carry on research extensively and efficiently without the help of the government, and even gain control of an industry.

Many instructive and convincing examples of the value of industrial research are afforded by the modern history of industry, and it is highly desirable that the benefits of research may be realized by the industries generally. The National Research Council is actively engaged in promoting scientific and industrial research, and the American Engineering Standards Committee is promoting engineering and industrial standardization. Both organizations are receiving the coöperation of the government, but not the adequate and effective coöperation they need and hope for, because the government agencies concerned are not given sufficient means to work with. It is believed that a better appreciation by the public of the importance of such work would result in better support of this work and great benefit to the industries and the public.

THE ECONOMIC VALUE OF STANDARDIZATION

The American Engineering Standards Committee is a coöperative organization devoted to the problems of national and international standardization. Twelve engineering societies or groups of societies, and five departments of the Federal Government are represented in its membership. The Committee is already actively at work in selecting sponsor societies for standardization work and approving standards. The government is rendering a valuable service to the industries, and thus to the people, by coöperating in

this constructive and useful work. Manufacturers have not coöperated with one another in the past in standardizing designs as much as they could have done if there had been more adequate means of coöperating. They have resented government dictation and control, but they welcome government coöperation in constructive work that benefits both them and the public. In many cases the designs and sizes of machines and materials manufactured by different concerns are different merely because development has been independent. In other cases needless differences are introduced in order to have something different. In either case, too many sizes and designs and lack of interchangeability increase the cost to the manufacturer, to the distributor and to the user. Nothing promotes economy and efficiency in the use of raw materials and finished products more than intelligent standardization. It reduces the varieties and sizes of materials that must be supplied by the manufacturer, lessens the stocks that must be carried by the distributor, makes the cost of the finished product less and reduces the trouble and expense to the user in caring for and keeping in repair machinery and equipment of all kinds.

The manufacture of scientific instruments has recently come to be an important industry in this country. This is partly owing to the greater use than formerly of scientific instruments in the industries, and partly to the war which has largely reduced the importation of scientific apparatus from abroad. The government would do well to coöperate actively with the manufacturers and with scientific and engineering societies in standardizing and describing scientific apparatus, so that the manufacturer will know better the properties and capabilities of his own output of apparatus, and the pur-

chaser will know how to select apparatus and whether he gets what he orders. In other words, scientific apparatus should be scientifically described and intelligently used, and the government could render an invaluable service in aiding to bring this about.

The metallurgical industries have been greatly developed in recent years through scientific research, and there is now greater activity than ever in this field. The manufacture of glass, porcelain, tile, and other clay products has been greatly stimulated during the war by the coöperation of scientific laboratories, and vast benefit would be derived by these industries if this coöperation could be continued and increased. The measurement of temperatures and especially furnace temperatures is a problem of increasing importance in the industries, and many scientific investigations are continually arising in this connection. The intelligent and efficient development of aeronautics depends on the possession of full and reliable information as to the properties of materials, the accurate measurement of the performance of machines, experimental researches in mechanics and aerodynamics, and the most intelligent utilization of existing and newly developed information. The measurement of color and of illumination and of the optical properties of materials and the development of optical methods form together a field of investigation of great scientific and economic value. The standardization of electrical apparatus and machinery, of electric batteries, and of the materials used in their manufacture open a wide field for research. It is impossible even to mention all the subjects of importance in this connection, but enough has been said to show how vast the field and how practical the results that are obtained whenever science is appealed

to in answering the problems arising in the industries.

The high costs of the services of the plumber have been proverbial for years. Standardization in plumbing fixtures and fittings, and interchangeability of parts could be carried further than it has been. This would greatly reduce the charges for time and material in making repairs as well as in the original installation. The enormous and confusing variety of lighting fixtures, and the bad design of many, are due to lack of standardization or coöperation of the manufacturers with one another. Inefficient and dangerous gas appliances have been sold to the public for years, and many are still in use.¹⁵ The manufacturers can not be blamed, for they can not separately engage in expensive research to arrive at correct designs. The only practicable way is for all to coöperate and for the government to take an active part, helping the manufacturers to study these problems of design and standardization intelligently and thoroughly.

Such work is constructive and wealth-producing, and yields large returns upon the investment. The benefit is almost immediate and not only are there material returns in decreased costs and improved service, but such coöperation between the government and the industries raises the standards of business and is helpful both to the government and to the industries. It emphasizes good quality and good performance and good service, and reduces misrepresentation and exaggeration in selling. Is it not the duty of the government to coöperate more actively in this constructive way with the industries? No other agency can per-

¹⁵ It has been estimated that the preventable loss in the use of natural gas on account of inefficient appliances and other wastage amounts to more than two hundred millions of dollars per year.

form this important function. The government would do only a part of the work, but that part is of great importance. Engineering societies, manufacturers' organizations, and individual manufacturing companies will do their part, and in many cases the greater part. But if the government refuses to do its part on the ground that it would increase taxation, the public will not be satisfied with the reason given when it knows that at the present time out of approximately \$50.00 per capita per annum collected by the government for all purposes, *scarcely more than one cent per capita per annum is expended by the government for standardization work, and five cents per year per capita would accomplish much.* The matter is of so fundamental importance, and promises results of so great economic and social value, that it is to be hoped that some more adequate effort along this line may be made.

In Great Britain the Engineering Standards Association is largely financed by the government, while the Department of Scientific and Industrial Research is a government body financed entirely by the government. The work of these organizations is expected to be of great value to industry in that country, and to be of service in developing its foreign trade. The activity of the government in this work lends value to the standards that result from it. The American Engineering Standards Committee and the National Research Council (of America), on the other hand, are financed entirely without government aid. This is an additional reason why government research institutions in America should be so well-supported that they can do their full duty in coöperation with privately supported scientific and industrial institutions which are doing work in the interest of the pub-

lic, and particularly standardization work of the kind in question.

Summary

Reference is made to the criticisms of the departments of the government for their inefficiency and excessive cost and the need for greater economy and better management. The suggestion is made that an examination of the activities of the government and of the cost and useful results of the work in the various departments would show that unqualified criticisms are not justified, and that the greatly increased costs are due mainly to the war and its consequences rather than to the expansion of the normal civil activities of the government.

The functions of government are classified into protective, commercial and developmental, and the fact noted that the developmental functions of the Federal Government tend to increase because it is both logical and economical to have such work as is of general interest in all the states done either by the Federal Government, with the coöperation of the states, or by the states with the coöperation of the Federal Government. Scientific and industrial research is noted as an important example of such developmental work which is creative and wealth-producing and a necessity rather than a luxury.

The importance of taking account not only of actual expenditures by the government departments but also of receipts derived from earnings and sales of government property, instead of looking only at appropriations, is emphasized. Examples are given showing the great difference between appropriations and actual net expenses payable from taxation. In some cases departments or bureaus are nearly or quite self-supporting. The total of appropriations before the war, as well

as since, were several hundred millions of dollars per year more than the net expenses payable from taxation.

A functional classification of the activities of the Federal Government is given, there being eight groups representing expenditures, with revenues from taxation included in a ninth group. The first three groups are civil, and in 1920 represented 6.4 per cent of the total expenditures. The five remaining groups are military, pensions, obligations arising from the war, interest and reduction of the public debt (paying for the war), all of which together represent 93.6 per cent of the total.

A detailed classification of the activities of the Federal Government is given under 106 items or headings, falling into the eight groups referred to above. A brief explanation of this classification is given, with reasons in some cases for the assignments made. Group I includes the essential governmental activities, legislative, executive and judicial under forty-nine headings. Group II includes research, education and developmental work, under thirty-one headings. Group III includes construction projects classed as public works, under six headings. The remaining twenty-six headings fall into the other five groups mentioned in the preceding paragraph.

A balance sheet for each year of the eleven fiscal years, 1910-20 is given showing revenues and net expenditures in all the groups, together with the net deficit or surplus for each year. The three civil groups together had an average net expenditure of \$211,337,288 per year for the ten-year period 1910-19, equivalent to \$2.14 per year per capita of the population of the country. In 1920 this increased to \$3.45 per capita, for reasons given in the text and briefly mentioned below.

The cost of the war is calculated for

the four fiscal years 1917-20, by taking the actual expenses of the civil groups and adding the estimated cost of the military departments, interest and pensions as they would have been if the war had not occurred, based on pre-war figures. The excess of expenditures (not including loans to European governments and others) over the normal expenditures so determined was \$25,982,723,219, and this may be taken as the direct cost of the war during those four years. The excess of revenue collected over the estimated normal expenditures was \$11,818,699,300, which covered 45.5 per cent of the calculated cost of the war during the given four-year period.

A brief but more specific statement is made of the functions and expenditures of the various activities included under the forty-nine headings of Group I, with tables and illustrative figures. The total net cost payable from taxation of all these activities, including Congress, the President and the various independent commissions (Civil Service, Tariff, Efficiency, Interstate Commerce, Federal Trade, the District of Columbia, etc.), Departments of State, Treasury, Post Office, Justice, part of the Departments of Interior, Agriculture, Commerce and Labor, the federal courts and penal establishments, operation of Panama Canal and public buildings, etc., was \$105,755,525 per year average for the ten-year period, or \$1.07 per year per capita of the country's population. In 1920 it was \$2.11 per capita.

The total net expenditures for the activities included under research, education and development in Group II, including fifteen bureaus of the Department of Agriculture and fifteen bureaus or other agencies under Interior, Commerce and Miscellaneous, was \$27,838,313 per year average for the ten-year period, or 28 cents per

year per capita. In 1920 it was 54 cents per capita.

The net expenditure for the new construction projects included as public works under Group III, including river and harbor improvements, Panama Canal, new public buildings, reclamation service, etc., was \$77,743,451 per year average for ten years, or 79 cents per year per capita. In 1920 it was 80 cents per capita.

The net expenditure for the Army and Navy, Group IV, averaged \$256,971,389 per year for the seven years 1910-16, \$6,302,322,105 per year for the three war years 1917-19, and \$1,348,892,747 for 1920. During the war years it averaged 25 times and in 1920 it was more than five times the pre-war rate. Pensions and care of soldiers, Group V, averaged \$165,439,944 before the war (1910-16) and in 1920 was \$329,261,746. Obligations arising from the war, Group VI, were in the aggregate as follows for the four years 1917-20: Railroad Administration \$1,534,975,574; Shipping Board \$3,217,239,085; Food and Fuel Administration \$170,898,189; Bureau of Industrial Housing and Transportation, Council of National Defense, Interdepartmental Social Hygiene Board and National Advisory Committee on Aeronautics, \$70,916,818; National Security and Defense, purchase of the Danish West Indies, European Food Relief and Liberty Loan Campaigns, \$256,430,951; total, \$5,250,460,617.

Less than one per cent of the above was spent in 1917, 21 per cent in 1918, 47 per cent in 1919, and 31 per cent in 1920.

Interest payments less interest received averaged during the seven years 1910-16, \$23,605,213; during the war years 1917-19, the average was \$115,853,240; in 1920 it was \$929,131,128. The relatively small average during the war years was partly because

the war loans came mainly in the later years of this period and partly because of large credits from interests on European loans.

A comparison is made of the expenditures of the civil branches of the government during the seven pre-war years 1910-16 and the three war years 1917-19. Group I, legislative, executive and judicial, increased from an average of \$97,718,290 to \$124,509,073 or 26 per cent; Group II increased from \$25,329,328 to \$33,692,610 or 33 per cent; Group III decreased from an average of \$85,408,910 to \$59,857,380 or 30 per cent. The total of the three groups averaged \$208,456,528 before the war and \$218,059,063 during the war, an increase of less than 5 per cent. During the same time the population of the country increased nearly 8 per cent, so that the per capita cost of the three civil groups together was slightly less during the war than before and averaged for the ten-year period \$2.14 per year.

In 1920 the civil expenses increased to \$3.45 per capita. Group I increased 80 per cent, Group II, 70 per cent, Group III, 42 per cent. The principal causes of increase in Group I were the large expansion of the Treasury Department largely on account of increased activities arising from the war; the large deficit in the Post Office Department because of increased compensation of employees and the railroads, as contrasted with a surplus during the war; the increased compensation of employees in all other departments; the increased cost of all kinds of material and supplies; and the growth of the government. The increases in the Treasury and Post Office account for 79 per cent of the total increase, all other departments and commissions 21 per cent. Of the increase in Group II, half was on account of the census of 1920 which is temporary; one-fourth

was in agriculture and the remainder in all the other activities. In Group III there was an increase of 17.8 millions in rivers and harbors, and of 23.5 millions in highway construction, and decreases in all the other items, the total net increase being 25.2 millions or 42 per cent.

In the six years 1910-15, the average federal taxation was \$6.63 per capita of the population of the country, of which \$2.19 or 33 per cent was expended for the civil activities included in Groups I, II and III. In 1916 the per capita taxation was \$7.08 of which \$2.00 or 28 per cent was for civil expenses. In 1917, taxation was \$9.92 per capita of which \$1.96 or 20 per cent was spent for civil purposes. In 1918, taxation was \$37.66 per capita and \$2.15 or 5.7 per cent was for civil purposes. In 1919, taxation was \$38.81 of which \$2.21 or 5.7 per cent was for civil purposes. In 1920, taxation was \$53.46 per capita of which \$3.45 or 6.4 per cent was for civil purposes. The average taxation for state governmental purposes throughout the forty-eight states of the Union in 1918 was \$4.48 per capita. The average taxation for municipal government in New York, Chicago and Philadelphia in 1918 was \$30.22 per capita. For all cities of over 30,000 population for eight years, 1910-18, it averaged \$23.10 per capita, while net expense averaged \$26.21.

The various functions of the Federal Government are reviewed in comparison with those outlined on pages 2 and 3 in order to see to what extent the Federal Government is doing the things that would naturally fall to it in the distribution of functions between federal, state and municipal. The conclusion is that the developmental functions, in which the primary aim is service rather than control, and the work is coöperative and educational rather than

administrative and governmental, are capable of great extension without conflicting with the rights or responsibilities of the states and municipalities, or with private initiative.

The employment policy of the government is examined and some legal handicaps to efficiency discussed. Statutory positions with fixed and often inadequate salaries make it difficult to develop an efficient personnel; the inequality of salaries in different branches of the service causing dissatisfaction and increasing the frequency of transfer gave rise to legislation restricting transfers and promotions by transfer. A classified and standardized civil service is greatly needed, and it is hoped that it will be realized in the near future. A Congressional Commission has classified the service in the District of Columbia, and two bills have been introduced into Congress embodying the results of this classification.

The war brought a great many additional employees into the government service, but the number has been considerably reduced during the past year. A comparison of the number in the service on July 31, 1920 with June 30, 1916, showed that the increases were mainly in the Army and Navy, War Risk Insurance, Shipping Board, Railroad Administration, and in the Treasury and State Departments, the functions of which have largely increased on account of the war. The Post Office increased in four years from 250,885 to 279,072, an increase of 28,187 or 11.2 per cent. The personnel in Washington and throughout the country in the Departments of Interior, Agriculture, Commerce, Justice, Labor; the Panama Canal, Government Printing Office, Interstate Commerce Commission and miscellaneous bodies (that is, all activities of the three groups I, II and III included in the executive departments,

except Treasury and State) increased in four years from 81,376 to 84,825, a difference of only 3,449 or 4.2 per cent. In these four years the population of the country had increased more than 5 per cent. The turnover in the personnel meantime has been excessive and a large part of the employees are hence relatively inexperienced. This answers the criticism of excessive personnel in these departments, and explains in large measure their reduced efficiency.

One of the reasons that makes it difficult to maintain a high standard of personnel and of efficiency in the government service in Washington is the high cost of living, and the resultant shrinkage in the purchasing power of salaries in recent years. This shrinkage is only partially covered by the war bonus which does not apply at all in the higher grades of the service. The recent fall in prices and reduction in the cost of living relieves the situation somewhat, but if the proposed increases of salary were made, there would still be a considerable margin between the new salary scale and what it would have to be to cover the actual increase to date in living costs since 1913.

Much has been said about duplication in the government service, and the reduced efficiency caused thereby. Examples of alleged duplication are discussed, such as gathering of statistics, map making, scientific research, engineering work, and administration and investigation in the interest of public health. Although there is undoubtedly room for improvement in many cases, nevertheless in most cases there is good coöperation among the various departments and bureaus concerned, and much of the so-called duplication is really only apparent. It is believed that the work is more efficiently carried on in most cases than if it were concentrated in one place.

The value of research and standardization in making the government efficient and effective is pointed out. It is important to have as complete knowledge as possible concerning the problems encountered in the administration of the government, such as those involved in the construction of public buildings and other public works, in making contracts for supplies, in inspecting and accepting deliveries on contracts, in collecting the revenue, in discussing proposed legislation, in enforcing the law. The coöperation of the Federal Government with states and municipalities, so as to make such information available to all, would be helpful to good government. The military value of such research is considerable, as it would aid in purchases of instruments and materials and in the solution of military problems, and would develop scientific methods, equipment and men available for research in time of war.

The coöperation of the government in the work of preparing safety codes, building codes, and public utility standards, which are adopted and enforced by states and municipalities and used by the industries as standards of good practice even if not formally adopted by any administrative agency, is of the greatest importance. These codes are sometimes prepared by a single state or city and sometimes coöperatively, by the joint effort of the government, engineering societies, the industrial and public utility interests, and the states and municipalities. The problems are much the same in all the states and hence the coöperative method is economical and favors standardization; many states and cities and many industries can thus use the same codes and standards, or substantially the same, and so avoid duplication of effort and confusion of practice. Such work is constructive and helpful,

promotes industrial and governmental efficiency and should be encouraged and developed.

Industrial research and standardization for the purpose of improving methods and reducing waste in the industries is another kind of creative and wealth-producing work which the government should carry on more actively. The problem of increasing production and reducing costs, without increasing the length of the working day or reducing wages below an American standard of living, is a fundamental one. Such work will stimulate industry, promote our foreign trade, elevate business methods and bring about a better understanding between the government and business. Coöperation in business is increasing constantly, and coöperation between the government and business in improving methods and increasing efficiency in manufacturing and distribution, and in solving many other problems of business can not fail to be beneficial and profitable.

CONCLUSION

Probably everyone will grant that the government should do more than it has yet done to raise the standard of its personnel, to improve its methods, to increase its efficiency, to develop the public domain, to coöperate with industry, to create wealth, to give the maximum of service to the people. As the war has greatly increased the national budget, and the industrial depression has emphasized the demand for a reduction of the burden of taxation, the question arises as to whether the government can do the things that are needed. In this discussion no opinion is expressed as to the relative proportion of the total expenditures that should properly be devoted to military and civil purposes. It is, however, urged that the primary func-

tions of government,—legislative, executive and judicial,—are essential, and the agencies through which they are exercised should be made as efficient and effective as possible; that research, education and development are not only necessary to the public welfare and helpful to commerce and industry, but they are creative and wealth-producing, and tend to lighten rather than increase the burdens of taxation; and that the money put into public works (if wisely expended) is a profitable investment which aids materially in the development of the public domain and

the country as a whole. As all of these activities together represented in 1920 only 6.4 per cent of the taxes collected, they would amount to less than 20 per cent of the whole, if the expenditures for these purposes were doubled and the total of taxes collected were reduced by one-third. That would make possible a great increase in the constructive service and welfare work of the government, and still leave more than three billion dollars per year for military expenditures, pensions, interest and the reduction of the public debt.

Sources of Revenue of the States with a Special Study of the Revenue Sources of Pennsylvania

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THE perplexing problem of providing increased revenues to meet the constantly growing expenditures of the state governments without disturbing their economic tranquillity is the perennial nightmare of the legislators of our several commonwealths. If the states are to continue expanding their activities, as public opinion is demanding, additional sources of revenue must be found or old sources must be rendered more productive. It may be a valuable aid, therefore, to a correct appreciation of this problem to demonstrate with the aid of simple diagrams the present revenue sources of the states, the per capita contribution, and the relative productivity of each source. Furthermore, it may prove of particular interest to supplement this study of the states with a special study of the revenue system of Pennsylvania, certain features of which are both unique and suggestive.

Table I presents an analysis of the

aggregate revenue receipts of the states for the year 1919. These statistics incorporate the revenues collected for the fiscal years ending on some date between July 1, 1918 and June 30, 1919, and are the latest statistics available for this purpose.

It is evident in the first place from chart I that the states are largely dependent upon taxation for their revenue, since taxes yielded 78.2 per cent of the total.

Only seven states in 1919 received less than 60 per cent of their revenue receipts from taxes. In this group were Minnesota, Missouri, North Dakota, South Dakota, Montana, Idaho, and Wyoming. States deriving almost 90 per cent or more of their revenue receipts from taxes were Pennsylvania, New York, New Jersey, and Illinois. The general departmental receipts rank next in importance to taxes and comprise those amounts received by the states in exchange for certain